United States
Department of the Interior

Aviation Safety Review
Fiscal Year 04

Prepared by
National Business Center
Aviation Management Directorate
Aviation Safety and Evaluation Division
December 2004

Published
By

United States Department of the Interior
National Business Center
Aviation Management Directorate
Aviation Safety and Evaluation Division

Additional copies of this document may be downloaded at
www.oas.gov

Aviation Management Directorate
Attention: Aviation Safety and Evaluation Division
300 E. Mallard Dr., Ste 200
Boise, ID 83706-3991
(208) 433-5070

During the past fiscal year, the Department of the Interior (DOI) experienced an increase in aviation accidents compared to the previous year. In FY 04, six aircraft accidents produced a rate of 7.64 accidents per 100,000 flight hours. In FY 03, the rate was 4.79.

There were four aviation-related fatalities; all contract employees.

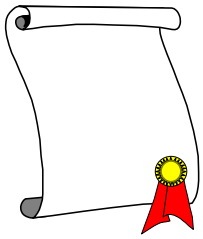
The National Transportation Safety Board (NTSB) investigated all six of the Department's accidents. The Aviation Management Directorate (AMD), Aviation Safety Office, participated in each of these investigations and provided assistance. To date, the NTSB has not determined the "probable cause" for the six FY 04 accidents.

We hope you find the information in this Aviation Safety Review useful. Please direct comments or suggestions to the AMD Aviation Safety Office at (208) 433-5070.

I want to personally thank personnel throughout the Department for their efforts to safely and efficiently use aviation in support of bureau missions. I would especially like to recognize and congratulate those individuals (see page ii) who received Aviation Safety Awards.

I wish everyone a safe and successful FY 05.

/s/ Michael A. Martin
Michael A. Martin
Associate Director, Aviation Management Directorate



Interior Aviation Safety Award
Recipients - 2004

In response to our request for Safety Award Nominees, the following personnel were recognized as follows:

Award for In-Flight Actions

William A. Smoke - FWS
Barton N. Stone – AMD
James S. Wortham - FWS

******

Award of Honor

James P. Bredy - FWS
Fred Roetker - FWS

Award of Excellence

David A. Mihalic - NPS
Elizabeth Huggins - FWS
Bill Mellor - FWS

Award of Distinction

Clifford F. Chetwin - NPS
Carl Ferguson - FWS

******

Award of Merit

James R. Traub - NPS

******

Airward

Hayden Bergin
Anthony Kruczynski
Cynthia McCarty

U.S. Department of the Interior

Aviation Safety Review FY 04

Section I
FY 04 Aviation Accidents – Summaries

East Highlands, CA	Lockheed P2V	October 3, 2003	2-3
Fredonia, AZ	McDonnell Douglas MD900	October 16, 2003	4-5
Safford, AZ	WSK PZL Mielec M-18A	March 16, 2004	6-7
St. George, UT	WSK PZL Mielec M-18A	June 17, 2004	8-9
Pine Ridge, SD	WSK PZL Mielec M-18T	July 11, 2004	10-11
Yakutat, AK	Cessna U206G	July 29, 2004	12-13

Section II
Aviation Accidents - Follow-up

FY 00

Cold Springs, NV	Bell 412	August 13, 2000	14

FY 02

Swan River, Manitoba, Canada	Cessna TU206F	May 27, 2002	15

FY 03

Keller, Washington	Kaman K-1200	July 25, 2003	16
Whiteriver, AZ	Bell 206L3	July 26, 2003	17

Section III
Accident Statistics and Trends

Graph 1/Table 1	Accident Rate History	19-20
Graph 2/Table 2	Total Flight Hours	21-22
Graph 3/Table 3	Fatal Accident Rate History	23-24
Graph 4/Table 4	Fatality Rate History	25-26
Graph 5/Table 5	Bureau Flight Hours/Bureau Statistics	27-28
Graph 6	Source Comparisons	29
Graph 7	Aircraft Comparisons	30
Graph 7a	Airplane Phase of Flight	31
Graph 7b	Helicopter Phase of Flight	32
Graph 8	Fatal Accident Comparisons	33
Graph 9	DOI Accident Statistics 10-Year Increments	34

Section IV
Aviation Safety Communiqué (SAFECOM)

Graph 10	Bureau SAFECOM Summary	36
Graph 11	Category SAFECOM Summary	37
Graph 12	Incident SAFECOM Summary	38
Graph 13	Hazard SAFECOM Summary	39
Graph 14	Maintenance SAFECOM Summary	40
Graph 15	Airspace SAFECOM Summary	41
Table 6	Bureau and Category SAFECOM Summary	42
Table 7	Bureau and Aircraft Type SAFECOM Summary	43
Graph 16	SAFECOM Ten-Year Trend	44
Glossary		45-46

Section I

FY 04 Aviation Accidents

The Department of the Interior flew 78,459.8 hours at a cost of $85,490,513.96 during the past fiscal year. Interior recorded six statistically accountable aircraft accidents at an annual rate of 7.64 per 100,000 flight hours. As a function of a decrease in aircraft utilization (total hours flown), and an increase in the total number of accidents (6) for the year, the annual accident rate for FY 04 is noticeably higher than compared to DOI's previous performance (FY 03 annual rate was 4.79).

The historical accident rate continues to fall from an initial high of 18.87 accidents per 100,000 flight hours in FY 75 to a current historical average of 8.52 per 100,000 flight hours through FY 04. Even though with the decrease in hours flown and the increase in reportable accidents for FY 04, the historical rate has decreased from 8.55 to 8.52. Although the annual rate did not decrease, the historical trend continues to be downward.

The National Transportation Safety Board (NTSB) investigated all six of the Department's accidents. The Aviation Management Directorate, Aviation Safety Office participated in these investigations and provided assistance.

Mishap investigations often reveal important information that may improve working conditions or mishap prevention measures. In cooperation with the NTSB, key issues associated with each accident have been identified and are included in this report. These issues are based on facts discovered during the investigations and may or may not be included in the final reports. We feel this information is important and will provide our aviation community with timely information necessary to help prevent future accidents.

The six Interior accidents involved five airplanes and one helicopter. Pages 2 through 13 provide information about each of the mishaps.

AIRCRAFT ACCIDENT
04-4F01-C-FNP

AIRCRAFT DATA: Lockheed P2V	**DATE**: October 3, 2003
BUREAU: National Park Service	**LOCATION**: East Highlands, CA
INJURIES: Two Fatal	**SOURCE**: Contract

Narrative: On October 3, 2003, at 1116 Pacific Daylight Time, a Lockheed P2V, N299MA, returning to the San Bernardino Air Tanker Base from a National Park Service mission, collided with terrain (N34º08.324' W117º 05.7') while maneuvering near East Highlands, California. The aircraft was destroyed and the two vendor pilots sustained fatal injuries.

Visual instrument meteorological conditions prevailed at the departure airport (Prescott, AZ) and throughout most of the flight route, however instrument meteorological conditions prevailed at the accident site.

Two observers in a forest lookout tower (elevation about 7,900 feet) north of the accident site reported an undercast cloud layer at approximately 5,000 feet as far to the south as they could see.

The observers saw the airplane make a steeper than normal 180-degree turn and level out heading in the direction of the San Bernardino Air Tanker Base. They said that the aircraft appeared to be descending as it flew through one cloud, reappearing briefly, and then entering the cloud layer. About 2 minutes later, the observers saw the top of the cloud layer bulge and turn a darker color. The bulge began to subside and they observed several smaller bulges appear. They notified local authorities that they thought a plane was down.

Initial responders reported that the accident site was in mountainous terrain and that the area was cloudy and the visibility was low.

The mishap aircraft was equipped with an automated flight following (AFF) system that provided the aircraft's location, heading, altitude, and airspeed. This data allowed investigators to re-create the final flight and corroborate the witnesses' observations.

Key Issues	Discussion
• Risk Management Strengths	No discrepancies noted on the part of the National Park Service, the Prescott ATB, the San Bernardino ATB, or the vendor. Automated Flight Following provided critical data for recreating the flight profile. …Airspeed …Altitude …Ground track
• Risk Management Weaknesses	Inadequate mission planning. No evidence that pilots received a weather briefing. Pilots must be encouraged to maintain instrument flight proficiency. Pilots must avoid complacency regarding the risks of flight in limited visibility in mountainous terrain.

The Probable Cause for this accident has not yet been established by the NTSB, however the Preliminary Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20031009X01699&key=1).

AIRCRAFT ACCIDENT
04-4F02-C-FNP

AIRCRAFT DATA: McDonnell Douglas MD900	**DATE**: October 16, 2003
BUREAU: National Park Service	**LOCATION**: Grand Canyon NP, AZ
INJURIES: Five Uninjured	**SOURCE**: Contract

Narrative: On October 16, 2003, at approximately 1650 Mountain Standard Time, the Grand Canyon National Park's exclusive-use MD 900 helicopter (N179PA) was substantially damaged when directional control was lost during the final stages of a landing to the Bear dip site. From approximately 30 feet above ground level (AGL) the helicopter spun violently to the right for at least two revolutions before the pilot was able to set the aircraft on the ground. Due to the rapid rotation and the uneven surface the aircraft rolled onto its left side. There were no injuries and the crew was able to aid the passengers in exiting the aircraft. Laboratory analysis indicates that a fatigue fracture resulted in the separation of a control rod inside the Fan Input Force Limiting Control Rod Spring Capsule. Failure of this control rod resulted in the NOTAR fan blades moving to a neutral pitch setting. The neutral pitch of the NOTAR fan blades reduced the volume of air flowing through the NOTAR tail boom reducing the effectiveness of the slotted tail boom's Coanda effect. As the aircraft began to yaw to the right the pilot appropriately applied left pedal, which rotated the thruster to the left. The rotation of the thruster opened a path for the low-pressure high-volume air remaining in the tail boom (previously produced by the NOTAR fan) to escape from the thruster without providing any effective anti-torque action. This loss of anti-torque control at a critical moment in the helicopter's approach, and in a physical location that did not provide any avenue for escape made the resulting crash inevitable. Upon identification of a material failure of the control rod, the investigator's focus shifted to engineering fixes by MD Helicopters and oversight by the Federal Aviation Administration. This investigation identified no deficiency on the part of the National Park Service, the vendor, or the pilot. On the contrary, the pilot's conservative approach, calm reaction to stress, and outstanding airmanship undoubtedly minimized damage and prevented loss of life. Similarly, the Park's coordinated and professional response to the emergency was exemplary, as was the vendor's cooperation and support during the investigation.

Key Issues	Discussion
• Risk Management Strengths	The exceptional skill and conservative flight profile allowed the pilot to prevent injury to his passengers and minimize damage to his aircraft. Excellent crew coordination. Outstanding post-accident response by Grand Canyon National Park. -Care for personnel -Notification -Security -Senior Leader involvement
• Risk Management Weaknesses	None noted.

The Probable Cause for this accident has not yet been established by the NTSB, however the Preliminary Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20031029X01827&key=1).

AIRCRAFT ACCIDENT
04-4F03-C-LLM

AIRCRAFT DATA: WSK PZL Mielec M-18A	**DATE**: March 16, 2004
BUREAU: Bureau of Land Management	**LOCATION**: Safford, AZ
INJURIES: One Fatal	**SOURCE**: Contract

Narrative: On March 16, 2004, about 0935 Mountain Standard Time Tanker 468, a Wsk Pzl Mielec, M-18A, (Dromader) N6259N, was destroyed and the vendor pilot sustained fatal injuries when the aircraft impacted terrain about 12 nautical miles east-northeast of Safford, Arizona (N32º 52.01' W109º 23.55'). The mishap pilot was participating in a Bureau of Land Management (BLM) managed Single-Engine Air Tanker (SEAT) pilot training program (commonly referred to as the SEAT Academy) in Safford, Arizona. The scenario at the time of the accident had the pilot receiving an in-flight mission change to test the pilot's ability to handle multiple tasks and re-program the radios and GPS in flight while enroute to a fire. Witnesses reported that the airplane was loaded with 400 gallons of water in preparation for a practice simulated fire retardant drop. A BLM employee simulating the role of a fire Incident Commander (IC) described the training scenario as "operations normal" as the accident airplane maneuvered on the downwind leg of the flight pattern. The pilot transmitted a request to the IC to perform a "dry run" prior to dropping his load of water on the simulated fire. The pilot was observed to extend his downwind leg. While turning left to the base leg, the airplane's engine was heard to "surge" two to three times. Witnesses stated that the airplane assumed an "unusual attitude" with "the right wing up and the nose down" until they lost sight of the airplane behind a small ridgeline.

Physical evidence at the crash site indicates that the aircraft impacted the ground in a near vertical, nose-low attitude. Environmental effects of weather and terrain were not considered significant to this accident. Investigators found no evidence of any pre-impact mechanical defects with the aircraft. Additionally, none of the pilots who had flown the aircraft recently could recall any deficiencies with the aircraft, with the exception that one pilot recalled that this aircraft used more fuel out of it's left tank than out of the right tank.

Inspection of the flight control system established continuity to the rudder and elevator. However, impact forces severed the flight control linkages from the cockpit to the ailerons. Refueling records and witness statements indicate that N6259N had been fully fueled by the previous pilot and the mishap pilot was observed to have physically checked at least the level of the left wing tank when he preflighted the aircraft on Sunday, March 14, 2004. A sample of fuel from the refueling source was tested and determined to be "on grade". A sample from the left wing could not be tested completely due to the very small quantity available and resulted in "failed specs". Witnesses observed the mishap pilot fly the aircraft approximately 30-45 minutes on Monday evening, March 15th. Dispatch logs recorded the mishap pilot's takeoff on Tuesday, March 16th at 0835 hours and the call from the ground observer to shut down the training as a result of the crash at 0935 hours. This indicates that the aircraft had been operated between 1 hour and 30 and 1 hour and 45 minutes (1.5-1.8 hours) and should have had more than an hour's worth of fuel remaining. Although initial responders recalled smelling fuel at the accident site on-site inspection of right and left fuel tanks via the fuel filler caps and fuel drains revealed no fuel present. The header tank, which is fed by both main fuel tanks and in turn provides fuel to the engine, also contained no fuel. Impact damage ruptured the right wing's fuel tank while the left wing's fuel tank and the header tank were intact and held water when tested. The M-18 Flight Manual, Section 4 Normal Procedures, paragraph 4-10 Level Flight, warns pilots against allowing an imbalance in fuel quantity between the right and left fuel tanks. Many of the Dromader pilots interviewed during this investigation had personally experienced an engine failure from this type of fuel imbalance during agricultural flying. According to the M-18 Flight Manual (paragraph 3.4(f)) pilots attempting to restart the engine following a fuel starvation caused engine failure should expect a loss of at least 656 feet (200 meters). Therefore, unless a fuel starvation caused engine failure occurs at enroute altitude the pilot should focus on making an emergency landing rather than trying to restart the engine. Teardown analysis of the engine found no evidence of any pre-impact mechanical defects and the engine appeared to have been operating at low power/RPM at the time of the impact. The investigation did not find proper documentation for the propeller configuration on the aircraft at the time of the accident. The propeller is not suspected of having played a causal role in this accident. The mishap pilot had logged 17,500 total flight hours of which 550 were in the M-18. The pilot's Interagency Airplane Pilot Qualification Card was expired at the time of the accident however; since the pilots and aircraft participating at the SEAT Academy were not contracted there was no specific requirement for either pilot or aircraft to be carded.

Key Issues	**Discussion**
• Risk Management Strengths	Rapid response and reporting. Excellent training program to improve SEAT pilot's knowledge of fire operations.
• Risk Management Weaknesses	Pilots must be familiar with the emergency procedures for their aircraft. M-18 pilots must realize that at normal operational altitudes they are likely to be below the minimum altitude to restart the engine (656 feet). M-18 pilots must understand that the Dromader is particularly susceptible to inadvertent fuel transfer from one wing tank to another if flown out of trim. All SEAT pilots should be encouraged to familiarize themselves with the stall characteristics of their aircraft. This should be accomplished prior to coming on contract. Due to the challenging flight characteristics of single-engine air tankers the requirement in the SEAT contract requiring a minimum of 5 hours annually in the aircraft make and model should be increased.

The Probable Cause for this accident has not yet been established by the NTSB, however the Preliminary Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20040330X00400&key=1).

AIRCRAFT ACCIDENT
04-4F04-C-LLM

AIRCRAFT DATA: WSK PZL Mielec M-18A	**DATE**: June 17, 2004
BUREAU: Bureau of Land Management	**LOCATION**: St. George, UT
INJURIES: One Fatal	**SOURCE**: Contract

Narrative: On June 17, 2004, at 1746 Mountain Standard Time, Tanker 465, a Wsk Pzl Mielec, M-18A, (Dromader) single-engine air tanker (SEAT) N8214J, operated by the Bureau of Land Management (BLM) was destroyed and the vendor pilot sustained fatal injuries when the aircraft collided with the terrain (37º 19.562' W113º 36.818') following a fire retardant drop near St. George, Utah. Visual meteorological conditions prevailed at the time of the accident and environmental effects of terrain are not considered significant in this accident. Physical evidence at the site indicates that the aircraft impacted the ground in a near vertical, nose-down attitude. No evidence of an in-flight structural failure, flight control discrepancy, or obvious catastrophic engine failure was noted at the site. Subsequent teardown analysis of the engine revealed no pre-impact mechanical defects and clear indications that the engine was producing relatively high power/high RPM at impact. The airplane maintenance records were on board the airplane at the time of the accident and were destroyed in the post-crash fire. The mishap pilot was acting as a relief pilot at the time of the accident. The primary pilot, who had flown the accident airplane for three years, reported no problems with the airplane prior to the accident. The mishap pilot was highly experienced in agricultural aircraft with over 21,000 total flight hours. However, this was the pilot's first fire season and his experience in the M-18 was estimated to be approximately 50 hours. Prior to the accident the pilot had made several retardant drops out of St. George and was described by witnesses as being careful to put his retardant precisely where it was requested. On the mishap drop the pilot was flying a left-hand pattern and had been directed by air attack to "tag onto" the existing fire line heading approximately 218 degrees. The drop altitude was about 100 feet above ground level (AGL), and the ground sloped downward about 20 degrees through the drop zone. The air attack said that the pilot called for an initial dry run to be followed by the drop of approximately 500 gallons of retardant. On the second pass the pilot radioed air attack and said that he overshot the final and was going around for another attempt. On the third approach the pilot called downwind, base, and final but made no other transmissions to indicate that he was having a problem.

Ground witnesses and the air attack observed the retardant exit the airplane early of the desired point and not distributed in an even line. Shortly after the drop the nose of the airplane was observed to pitch up slightly, then to pitch down approximately 45 degrees until ground impact. After impact other aircraft in the immediate area were directed to drop their retardant on the wreckage to aid in extinguishing the post-crash fire. Following the accident pilots with various amounts of experience in the M-18 Dromader were interviewed. Most of the pilots have individual techniques on how to fly the aircraft during a retardant drop depending upon the situation (i.e. environment, terrain, load, type of fire, type of gate, etc.), which in turn affects the type of approach, trim and flap settings, and the airspeed that the pilot will use. The majority of the airspeeds described for the retardant drops were below the placarded limits published in the M-18 Aircraft Flight Manual. The M-18 pilots said that the slower airspeeds were used to compensate for an abrupt pitch up of the aircraft's nose as the load of retardant was released. The pitch up of the nose is caused by the aircraft's center of gravity shifting aft as the load is suddenly released causing the airspeed to decrease by as much as 10 miles per hour (MPH). Flying at airspeeds below those required by the Aircraft Flight Manual, in potentially turbulent air and experiencing the loss of airspeed from the nose pitching up can place the aircraft at or near its stall speed. Very few of the M-18 pilots interviewed had ever practiced a stall in the M-18. Each pilot had their own recovery technique and the consensus was that it was a learned skill that had to be developed with time in the aircraft. Individuals with less experience in the M-18 such as the mishap pilot can easily get behind while flying the aircraft enabling a situation to develop that can be difficult to arrest especially at low altitudes. As a result, the National SEAT Program Manager temporarily stood down operation of all 26 contracted Dromader M-18 airplanes so that pilots could "review published charts and flight manuals pertaining to drop speeds for the PZL M-18 Dromader aircraft models A and B equipped with either piston or turbine engines, at the weights common to fire suppression operations."

Key Issues	**Discussion**
Risk Management Strengths	Rapid reporting and emergency response. Involvement of National SEAT Program Manager. -Stand-down of M-18 fleet. -Recommendation for pilots to review aircraft-specific drop airspeeds. -No discrepancies noted on the part of the BLM, the Arizona Strip Office, or the vendor.
• Risk Management Weaknesses	All SEAT pilots should be encouraged to familiarize themselves with the stall characteristics of their aircraft. This should be accomplished prior to coming on contract. Pilots must understand and comply with the aviation life support equipment (ALSE) requirements of their contract. Government contract officer representatives such as SEAT managers should observe and enforce ALSE requirements. Numerous interviews revealed that there are no standardized procedures for single-engine air tankers to apply retardant to a fire. Experienced pilots should be surveyed to determine "best practices" that can reduce the risks faced by new pilots learning this challenging skill. Interviews with numerous M-18 pilots revealed that few comply with the M-18 Aircraft Flight Manual's minimum operating airspeed of 106 miles per hour indicated airspeed. Pilots must understand and comply with all operating airspeeds and other aircraft limitations of the aircraft that they fly. Adoption of the automated flight following (AFF) system would provide valuable data on airspeeds flown during retardant drops.

The Probable Cause for this accident has not yet been established by the NTSB, however the Preliminary Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20040712X00952&key=1).

AIRCRAFT ACCIDENT
04-4F05-C-BIA

AIRCRAFT DATA: WSK PZL Mielec M-18T	**DATE**: July 11, 2004
BUREAU: Bureau of Indian Affairs	**LOCATION**: Pine Ridge, SD
INJURIES: One Uninjured	**SOURCE**: Contract

Narrative: On July 11, 2004, at 1925 Mountain Daylight Time, a Pzl Mielec M-18T, N7077N, operated by the Bureau of Indian Affairs (BIA), sustained substantial damage during a forced landing to a rolling wheat field (N43º 01.07' W102º 32.18') near Pine Ridge, South Dakota. The vendor pilot was not injured. Visual meteorological conditions prevailed at the time of the accident. The area was free of obstructions with the exception of a power line running north-south, perpendicular to the aircraft's flight path, located approximately 500 feet east of the aircraft's termination point. While returning from a retardant drop the pilot began a descent from cruise flight to enter the traffic pattern at 120 mph. As the pilot approached the field he slowed the aircraft and reduced the power to the flight idle position with the intent of entering downwind for runway 30. At that time the pilot observed the propeller over speed light (N2 compressor) illuminate. The pilot stated that the maximum operational speed of N2 (1720 rpm) was exceeded. As he continued to descend the N2 speed climbed to 1850 rpm so the pilot reduced the power to 91 percent and maintained the descent. The pilot noticed that after the power was reduced the aircraft was only indicating 17 PSI of torque. Attempts to control the descent with power resulted in over-speeding the engine without decreasing the rate of descent. The pilot, realizing that he could not make runway 30, adjusted to land on runway 06 but the aircraft continued to descend and the pilot was forced to land in a rolling wheat field l/2 mile west of runway 06. The landing resulted in the right main landing gear being forced up into the wing damaging both the wing and the center section. No deficiencies were noted in either the pilot's qualifications or performance during this emergency. The propeller control assembly was disassembled and inspected at Pacific Propeller Inc. and was found to be heavily contaminated with debris, which clogged all of the internal filters. This resulted in a pressure differential between the pressure and return sides of the propeller control causing the propeller to "lock".

Key Issues	Discussion
• Risk Management Strengths	Excellent reaction to the emergency by the pilot. No discrepancies noted on the part of the BIA, the Pine Ridge Agency, or the vendor.
• Risk Management Weaknesses	Operators should use the manufacturer's recommended hydraulic fluid in the propeller control unit in conjunction with either an oil change schedule or an oil analysis program.

The Probable Cause for this accident has not yet been established by the NTSB, however the Preliminary Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20040803X01123&key=1).

AIRCRAFT ACCIDENT
04-4F05-C-BIA

AIRCRAFT DATA: Cessna U206G	**DATE**: July 29, 2004
BUREAU: National Park Service	**LOCATION**: Yakutat, AK
INJURIES: Two Uninjured	**SOURCE**: Fleet

Narrative On July 29, 2004, about 1000 Alaska Daylight Time, a Cessna U206G airplane, N9178G, operated by the National Park Service (NPS) sustained substantial damage when the aft cargo door came open during the takeoff roll, and damaged the fuselage at the Yakutat Airport, Yakutat, Alaska. The NPS pilot and his sole passenger were not injured. The pilot stated that when the door inadvertently opened on the takeoff a cardboard box containing a laptop computer fell out of the aircraft onto the runway. The pilot aborted the takeoff and back-taxied down the runway and retrieved the box. He then taxied off of the runway to the tarmac area where he shut the aircraft down and checked the door and fuselage but did not see significant damage. After checking the doors, the hinges, the locking mechanisms, and seeing that the doors would lock, the pilot continued with his mission that day. The pilot continued flying missions in N9178G until DOI-AM maintenance personnel noticed the damage during a 100-hour inspection on or about August 20, 2004. Although the pilot stated in his interview that he was certain that he had secured the cargo door the investigation concluded that there was no mechanical defect in the cargo door system and if the aft cargo door had been properly closed, latched, and locked it could not have inadvertently opened. It is believed that the pilot unintentionally failed to fully close the aft cargo door by placing the aft cargo door handle in the closed position while the upper and lower hooks were outboard of the latch plates. This allowed the aft cargo door to feel tight and secure without being locked. With the aft cargo door in this tight but unlocked condition the pilot closed the forward cargo door believing that it was locked. During his pre-takeoff cockpit procedures the pilot checked to see that the cargo door's inside handle was in the locked position and proceeded with the takeoff. During the takeoff roll the cargo door opened and damaged the fuselage. It is likely that the unsecured box containing the laptop computer hit the cargo door, causing it to open. Environmental effects of weather and terrain were not considered significant to this accident.

DOI-AM Alaska Region OPM 04-AR-14 states that, "*All discrepancies shall be entered on an OAS-2 as they occur*." A review of OAS-2s for N9178G for the period of July 19-30 revealed no entry describing either the cargo door inadvertently opening, damage to the fuselage, or any operations at Yakutat. A SAFECOM was not filed at the time of the event.

Key Issues	Discussion
• Risk Management Strengths	Excellent support by NPS Regional Aviation Manager and DOI-AMD Alaska Regional Office Maintenance Section.
• Risk Management Weaknesses	Pilots should be encouraged to use checklists when conducting the pre-flight inspection to avoid complacency. Aircraft damage must be inspected and approved by a certified aviation mechanic prior to being returned to service. Pilots must understand and accept the responsibility to submit a SAFECOM when the aircraft is damaged, or when an unexpected event occurs such as the inadvertent opening of the cargo door.

The Probable Cause for this accident has not yet been established by the NTSB, however the Factual Report can be viewed online at (http://www.ntsb.gov/NTSB/brief.asp?ev_id=20040929X01536&key=1).

Section II

FY 00, FY 02, FY 03 Aviation Accidents - Follow-up

At the time the Annual Safety Review is published each year many accidents have not yet been finalized by the National Transportation Safety Board (NTSB). To complete the information flow, the following material pertains to accidents presented in the FY 00, FY 01, and FY 02 Aviation Safety Review.

AIRCRAFT ACCIDENT
00-0F04-C-LLM

AIRCRAFT DATA: Bell 412	**DATE**: August 13, 2000
BUREAU: Bureau of Land Management	**LOCATION**: Cold Springs, NV
INJURIES: One Fatal	**SOURCE**: Contract

Narrative: On August 13, 2000, at 1646 hours Pacific daylight time, a Bell 412, N174EH, collided with mountainous terrain while conducting a water drop on a wildfire along a ridgeline near Cold Springs, Nevada. The helicopter was operated by the Bureau of Land Management as a public-use firefighting mission under the provisions of 14 CFR Part 91, and was destroyed. The airline transport pilot sustained fatal injuries. Visual meteorological conditions prevailed for the accident flight, and a company flight plan was filed. The helicopter had departed the Twin Peaks Helibase located at Cold Springs at 1605. Weather reported by another firefighting pilot who was flying in the area at the time of the accident was about 79 degrees Fahrenheit, with winds from the north-northwest at 10-15 knots. The accident site elevation was about 6,300 feet msl. An approximate density altitude of 9,100 feet was calculated for the accident location. The accident helicopter was the lead in a flight of two helicopters that was to make a bambi bucket water drop along the ridgeline, at his discretion, with the trailing pilot also making a water drop behind the accident helicopter.

The accident is currently under investigation by the NTSB; preliminary information is subject to change.

AIRCRAFT ACCIDENT
02-2F03-O-FWS

AIRCRAFT DATA: Cessna TU206F	**DATE**: May 27, 2002
BUREAU: U.S. Fish and Wildlife Service	**LOCATION**: Swan River, Manitoba, Canada
INJURIES: One Minor, One Uninjured	**SOURCE**: Fleet

Narrative: On May 27, 2002, an amphibious Cessna TU206F, N753, serial no. U20603401, operated by the U.S. Department of the Interior, crashed near Swan River, Manitoba, Canada. Of the two persons on board, the pilot sustained minor injuries and passenger was not injured. The airplane was destroyed by the impact and post-crash fire. The airplane was operating in daylight, visual meteorological conditions, under the regulations and authority of CAA, Canada.

The flight was on a game observation mission in conjunction with Canadian authorities. Shortly after takeoff from runway 20 at Swan River, the pilot reportedly felt engine vibrations and observed a decrease of manifold pressure. He turned towards the airport and, unable to maintain altitude, performed a forced landing in flat, bushy, and treed terrain, about 1 mile west of the airport.

The investigation is being conducted under the authority of Transportation Safety Board, Canada. Assistance is being offered by the U.S. Department of the Interior, Cessna Aircraft Company, and Teledyne Continental Motors (TCM).

Probable Cause: The Transportation Safety Board, Canada determines that the probable cause(s) of this accident was: (1) The aircraft's fuel was contaminated with water, deteriorating engine power. (2) A restriction in the No. 1 fuel injector resulting from corrosion of the manifold screen caused the No. 1 cylinder to stop firing, contributing to the deteriorating engine power. (3) The aircraft was destroyed by fire, most likely as a result of a fuel leak that started because of airframe damage during the forced landing.

AIRCRAFT ACCIDENT
03-3F03-C-BIA

AIRCRAFT DATA: Kaman K-1200	**DATE**: July 25, 2003
BUREAU: Bureau of Indian Affairs	**LOCATION**: Keller, WA
INJURIES: One Fatal	**SOURCE**: Contract

Narrative: The pilot was returning to pick up a load of water while engaged in firefighting operations. The helicopter was in cruise flight when the pilot radioed I've got a problem" and "I'm going down." Witnesses observed rotor blades departing from the helicopter. On site examination revealed that all four main rotor blades had departed from their respective rotor hub/blade grip units coming to rest in a circumferential band within several hundred feet of the helicopter's ground impact point. Both main rotor hubs also departed the airframe and were located a short distance north and east of the ground impact site. Post crash examination revealed the presence of extensive corrosion fatigue cracking in the upper half of the blade grip plate associated with blade (s/n) 27B. The crack passed through the 7th blade retention bolt hole from the inboard section of the grip leaving the blade attached at the upper blade grip plate by one bolt inboard of the crack and 5 bolts outboard of the crack. The crack displayed corrosion fatigue striations through most of its surface. The number 7 blade retention bolt bushing was also found to have corrosion fatigue cracking in line with the grip crack. With a crack through the inboard section of the upper blade grip plate occurring, the rigidity of the associated blade (27B) would have been significantly weakened in the vertical axis and dynamic imbalance would have developed leading to successive separation of all four blades.

Probable Cause: The National Transportation Safety Board determines the probable cause(s) of this accident as follows: Corrosion fatigue within the blade retention bolt bushing(s) of the main rotor blade grip resulting in fatigue, cracking and ultimate separation of the upper grip plate. The separation of the upper blade grip plate led to a dynamic imbalance within the rotor system and the subsequent loss of all four rotor blades in flight.

AIRCRAFT ACCIDENT
03-3F04-C-BIA

AIRCRAFT DATA: Bell 206L3	**DATE**: July 26, 2003
BUREAU: Bureau of Indian Affairs	**LOCATION**: Whiteriver, AZ
INJURIES: Two Fatal; Two Serious	**SOURCE**: Fleet

Narrative: On July 26, 2003, at 1034 mountain standard time, a Bell 206L-3, N6184D, crashed near Whiteriver, Arizona. The Bureau of Indian Affairs (BIA), Fort Apache Indian Reservation, operated the helicopter under the provisions of 14 CFR Part 91. The helicopter was destroyed. The commercial pilot and one passenger were fatally injured; two passengers sustained serious injuries. One person on the ground was not injured. The public-use flight departed the Whiteriver Airport (E24), at 1000, en route to the Wilderness Fire in the vicinity of Aspen Ridge, 12 statute miles from E24. Day visual meteorological conditions prevailed, and a BIA company flight plan had been filed. The primary wreckage was at 33 degrees 53.152 minutes north latitude and 109 degrees 40.522 minutes west longitude.

The purpose of the flight was to insert a 3-person helicopter initial attack (helitack) crew to conduct an initial attack for a wildland fire along the Aspen Ridge.

The Safety Board Investigator-in-Charge (IIC) interviewed a ground witness to the accident. The helitack crewman had been dropped off at the road-landing zone (LZ), 100 yards west of the accident site. He stated that there were five people in the helicopter when they departed E24. No problems were noted with the flight to Aspen Ridge. They landed at a meadow, and two of the helitack crew exited the helicopter.

The helicopter then flew up the drainage area to the LZ, where the witness exited and off-loaded fire packs and tools. He stated that the initial landing was on the front side of a small hump in the road. Prior to his exiting, the pilot moved the helicopter back to a flatter area. When the pilot repositioned the helicopter, the witness heard a knocking noise.

The witness stated that the pilot took off again for the meadow. He reported that when the helicopter came back to the LZ, it was about 10-20 feet above the tree line. He estimated that the trees were about 100-feet tall. He also stated that the helicopter was flying slowly.

The witness stated that he was getting ready to marshal the flight in when the helicopter flew past him, continuing up the drainage. The witness reported that he did not know why they flew past him. He looked away to do something else, and heard a noise. When he looked up he saw the helicopter spinning to the right and then lost sight with the helicopter but heard what he believed was the helicopter hitting the trees.

The ground witness ran to the accident site, and rescued the survivors. During the rescue he extinguished a post-fire in the engine area.

The accident is currently under investigation by the NTSB; preliminary information is subject to change.

Section III

Accident Statistics and Trends - Introduction

This section of the review presents a statistical overview of aviation accidents, incidents, and flight times within the Department of the Interior (DOI). Whenever possible, total flight times and accidents are subdivided into fleet, contract, and rental aircraft. Historical records from previous years are also included for comparison.

The statistics are divided into two major parts. The first reflects DOI accident history and rates from FY 75 to FY 04 Several comparisons are presented using data collected from FY 00 through FY 04. The last section reviews events reported through the SAFECOM reporting system.

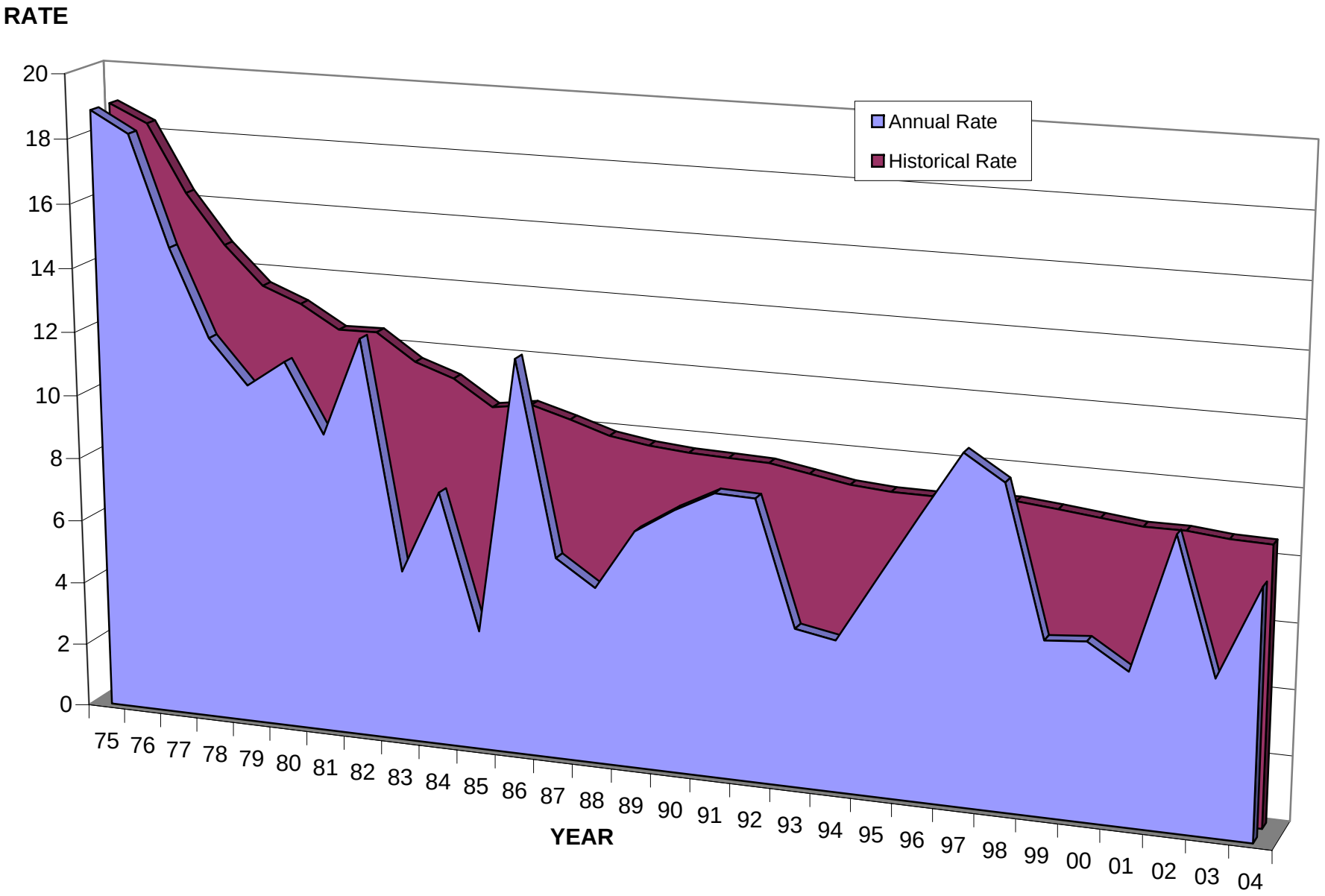
All accident rates in this report are based on 100,000 flight hours. They are determined by dividing the number of accidents by the flight hours, then multiplying that number by 100,000. Dividing the total number of accidents by the total flight hours recorded since FY 75, then multiplying that number by 100,000 determines the historical average.

Historical Records from FY 75 to FY 04

In FY 04 the Department of the Interior flew 78,459.8 hours. Interior recorded six statistically accountable aircraft accidents for an annual rate of 7.64 per 100,000 flight hours.

Graph 1/Table 1	ACCIDENT RATE HISTORY. A comparison of annual and historical accident rates from FY 75 through FY 04
Graph 2/Table 2	TOTAL FLIGHT HOURS. A comparison of annual flight hours, which are subdivided according to the source (Fleet, Rental, and Contract). The historical column reflects cumulative flight times.
Graph 3/Table 3	FATAL ACCIDENT RATE HISTORY. A summary of annual and historical rates from FY 75 through FY 04.
Graph 4/Table 4	FATALITY RATE HISTORY. A comparison of annual and historical fatality rates from FY 75 through FY 04.
Graph 5/Table 5	BUREAU FLIGHT HOURS. A comparison of bureau flight hours for FY 04 BUREAU STATISTICS. Bureau flight hours and accidents from FY 00 to FY 04.
Graph 6	SOURCE COMPARISONS. A comparison of flight hours, accidents, and accident rates by source (Fleet, Rental, and Contract) from FY 00 to FY 04.
Graph 7	AIRCRAFT COMPARISONS. A comparison of airplane and helicopter accidents and accident rates from FY 00 to FY 04. Graph 7a - AIRPLANE PHASE OF FLIGHT COMPARISONS. A comparison of number of airplane accidents per phase of flight FY 00 to FY 04. Graph 7b- HELICOPTER PHASE OF FLIGHT COMPARISONS. A comparison of number of helicopter accidents per phase of flight from FY 00 to FY 04.
Graph 8	FATAL ACCIDENT COMPARISONS. A comparison of airplane and helicopter fatal accidents and fatal accident rates from FY 00 to FY 04.
Graph 9	DOI ACCIDENT STATISTICS 10-YEAR INCREMENTS

ACCIDENT RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Annual Rate	18.87	18.22	14.81	12.10	10.73	11.57	9.41	12.49	5.36	7.96	3.73	12.30	6.29	5.50	7.37	8.14	8.78	8.74	4.91	4.68	6.72	8.73	10.71	9.95	5.37	5.48	4.71	8.91	4.79	7.64
Historical Rate	18.87	18.32	16.25	14.73	13.56	13.09	12.39	12.41	11.60	11.19	10.41	10.59	10.25	9.86	9.68	9.58	9.53	9.49	9.28	9.07	8.98	8.97	9.03	9.06	8.94	8.81	8.67	8.67	8.55	8.52

Graph 1

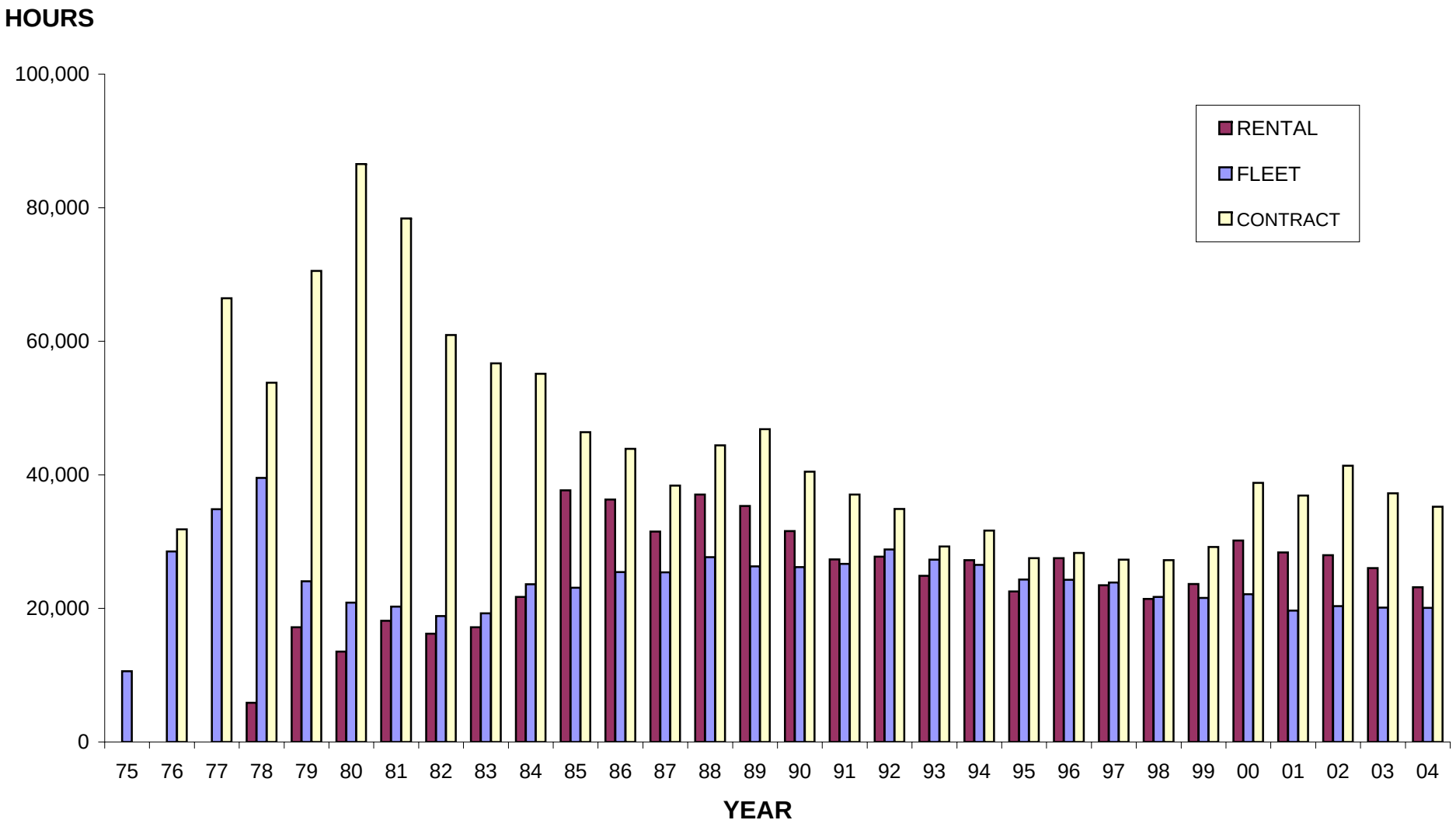
Accident rate per 100,000 flight hours.

ACCIDENT RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	Accident	Rate	Accident	Rate	Accident	Rate	Accident	Accident *	Rate	Accident	Accident*	Rate
75	0	0.00	2	18.87	n/a**	n/a	2	4	18.87	2	4	18.87
76	0	0.00	3	10.51	8	25.13	11	7	18.22	13	11	18.32
77	0	0.00	4	11.47	11	16.56	15	4	14.81	28	15	16.25
78	0	0.00	4	10.12	8	14.87	12	2	12.10	40	17	14.73
79	1	5.82	3	12.46	8	11.34	12	6	10.73	52	23	13.56
80	0	0.00	6	28.75	8	9.24	14	2	11.57	66	25	13.09
81	1	5.50	1	4.92	9	11.48	11	1	9.41	77	26	12.39
82	1	6.16	6	31.79	5	8.20	12	1	12.49	89	27	12.41
83	1	5.81	0	0.00	4	7.06	5	1	5.36	94	28	11.60
84	2	9.20	1	4.23	5	9.06	8	2	7.96	102	30	11.19
85	1	2.65	1	4.32	2	4.31	4	4	3.73	106	34	10.41
86	2	5.51	4	15.72	7	15.94	13	3	12.30	119	37	10.59
87	0	0.00	3	11.80	3	7.81	6	0	6.29	125	37	10.25
88	3	8.10	2	7.23	1	2.25	6	0	5.50	131	37	9.86
89	3	8.48	2	7.61	3	6.40	8	2	7.37	139	39	9.68
90	5	15.82	1	3.82	2	4.94	8	0	8.14	147	39	9.58
91	6	21.93	2	7.50	0	0.00	8	1	8.78	155	40	9.53
92	0	0.00	8	27.74	0	0.00	8	0	8.74	163	40	9.49
93	2	8.04	1	3.66	1	3.41	4	2	4.91	167	42	9.28
94	1	3.67	2	7.53	1	3.16	4	0	4.68	171	42	9.07
95	3	13.30	1	4.11	1	3.63	5	1	6.72	176	43	8.98
96	2	7.26	4	16.46	1	3.53	7	0	8.73	183	43	8.97
97	2	8.52	4	16.73	2	7.32	8	0	10.71	191	43	9.03
98	2	9.34	2	9.20	3	11.02	7	1	9.95	198	44	9.06
99	1	4.22	1	4.63	2	6.84	4	1	5.37	202	45	8.94
00	2	6.62	1	4.51	2	5.15	5	0	5.48	207	45	8.81
01	0	0.00	3	15.23	1	2.70	4	0	4.71	211	45	8.67
02	2	7.15	4	19.65	2	4.83	8	0	8.91	219	45	8.67
03	0	0.00	2	9.95	2	5.36	4	0	4.79	223	45	8.55
04	0	0.00	1	4.98	5	14.20	6	0	7.64	229	45	8.52
Total	**43**	**6.31**	**79**	**10.94**	**107**	**7.95**	**229**	**45**	**8.52**			

* Non-Chargeable accidents
** Contract flight hours not available in 1975.

TOTAL FLIGHT HOURS

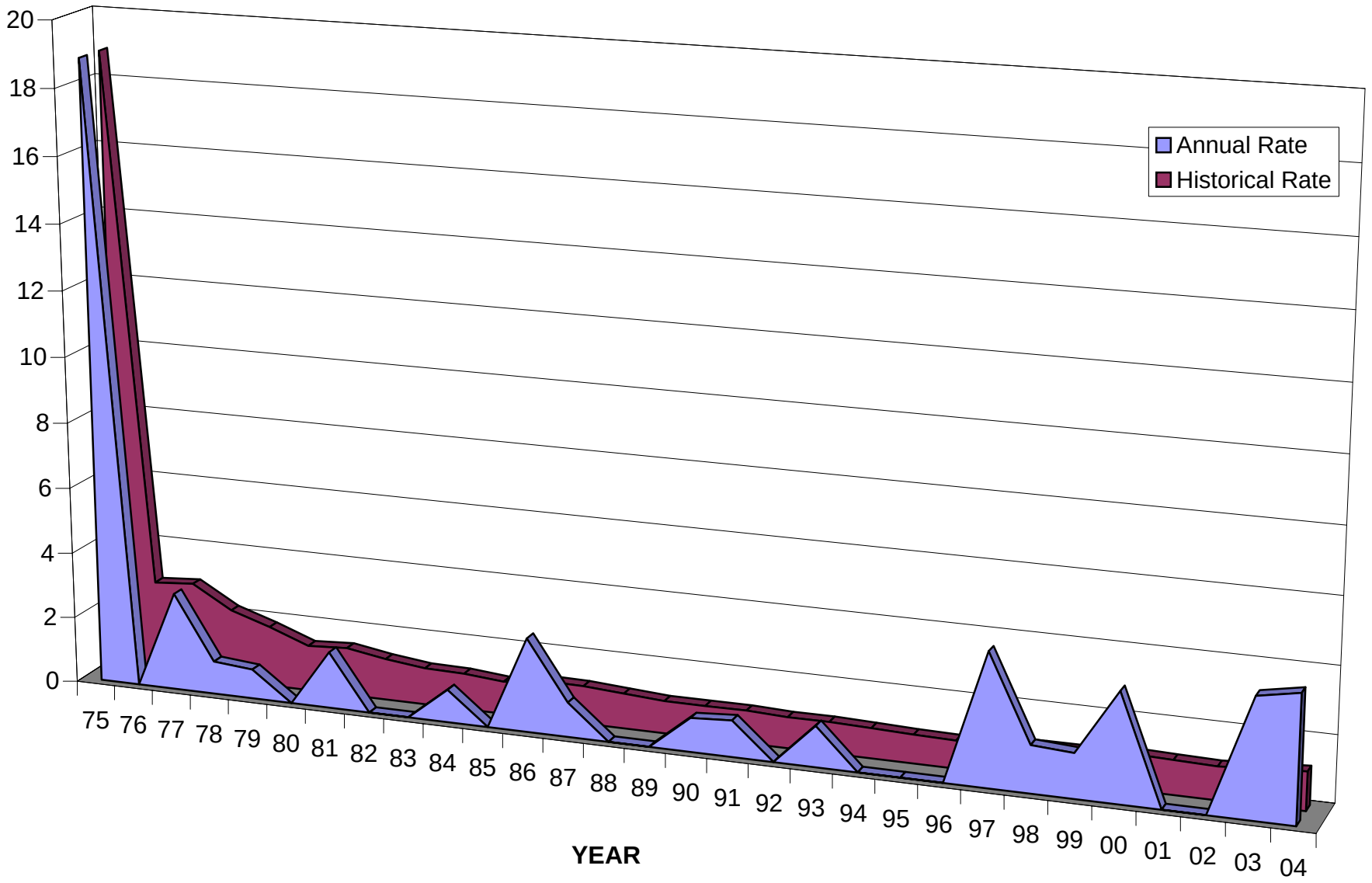


TOTAL FLIGHT HOURS

Year	Rental	Fleet	Contract	Total (Annual)	Total (Historical)
75	0.0	10,598.8	n/a*	10,598.8	10,598.8
76	0.0	28,523.4	31,833.4	60,356.8	70,955.6
77	0.0	34,865.2	66,442.1	101,307.3	172,262.9
78	5,890.0	39,528.1	53,784.9	99,203.0	271,465.9
79	17,180.8	24,072.7	70,528.1	111,781.6	383,247.5
80	13,551.9	20,865.6	86,515.1	120,932.6	504,180.1
81	18,173.0	20,284.4	78,381.5	116,838.9	621,019.0
82	16,223.5	18,876.4	60,953.0	96,052.9	717,071.9
83	17,193.1	19,286.5	56,694.9	93,174.5	810,246.4
84	21,727.4	23,605.8	55,143.1	100,476.3	910,722.7
85	37,686.3	23,095.5	46,396.4	107,178.2	1,017,900.9
86	36,321.0	25,431.7	43,909.8	105,662.5	1,123,563.4
87	31,514.7	25,408.9	38,397.4	95,321.0	1,218,884.4
88	37,036.9	27,667.3	44,401.7	109,105.9	1,327,990.3
89	35,357.9	26,283.9	46,853.0	108,494.8	1,436,485.1
90	31,603.4	26,188.2	40,462.7	98,254.3	1,534,739.4
91	27,360.9	26,660.7	37,051.5	91,073.1	1,625,812.5
92	27,763.2	28,834.8	34,885.9	91,483.9	1,717,296.4
93	24,890.4	27,317.2	29,288.6	81,496.2	1,798,792.6
94	27,240.4	26,533.5	31,640.8	85,414.7	1,884,207.3
95	22,547.1	24,325.7	27,514.6	74,387.4	1,958,594.7
96	27,530.4	24,300.7	28,328.9	80,160.0	2,038,754.7
97	23,462.5	23,895.7	27,313.0	74,671.2	2,113,425.9
98	21,415.8	21,734.9	27,227.2	70,377.9	2,183,803.8
99	23,645.6	21,573.6	29,205.5	74,424.7	2,258,228.5
00	30,171.6	22,137.6	38,787.7	91,096.9	2,349,325.4
01	28,374.2	19,694.3	36,907.5	84,976.0	2,434,301.4
02	27,965.9	20,355.9	41,381.6	89,703.4	2,524,004.8
03	26,044.5	20,108.6	37,253.3	83,406.4	2,607.411.2
04	23,175.9	20,071.3	35,212.6	78,459.8	2,685,871.0
Total	**681,048.3**	**722,126.9**	**1,282,695.8**	**2,685,871.0**	

* Contract flight hours not available in 1975.

FATAL ACCIDENT RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Annual Rate	18.87	0.00	2.96	1.00	0.89	0.00	1.71	0.00	0.00	0.99	0.00	2.84	1.04	0.00	0.00	1.02	1.10	0.00	1.23	0.00	0.00	0.00	4.01	1.42	1.34	3.29	0.00	0.00	3.59	3.82
Historical Rate	18.87	2.81	2.90	2.21	1.83	1.38	1.45	1.26	1.11	1.09	0.98	1.16	1.14	1.05	0.97	0.98	0.98	0.93	0.94	0.90	0.86	0.83	0.94	0.96	0.97	1.06	1.02	0.99	1.07	1.15

Accident rate per 100,000 flight hours

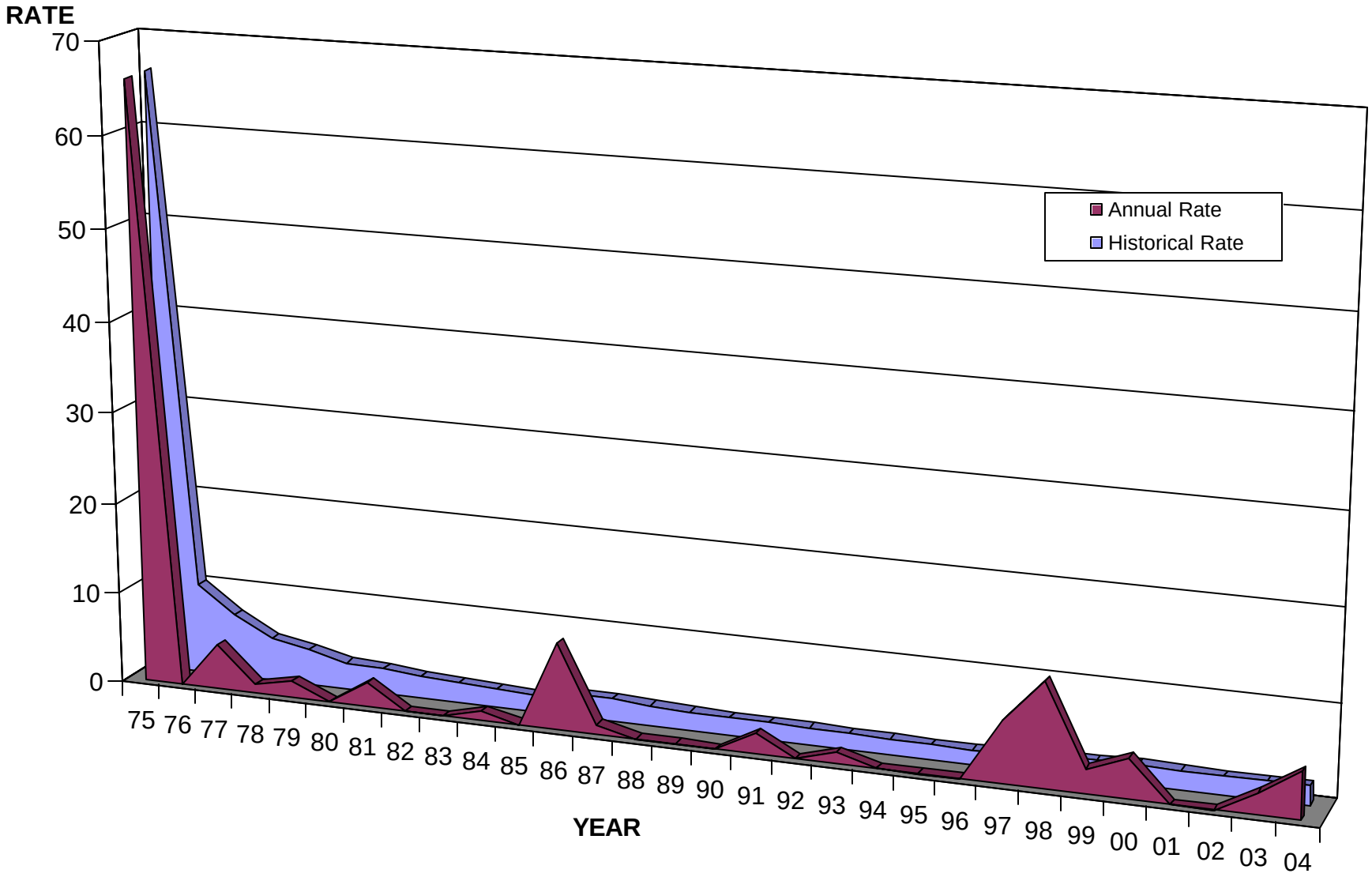
FATAL ACCIDENT RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	Accident	Rate	Accident	Rate	Accident	Rate	Accident	Accident *	Rate	Accident	Accident *	Rate
75	0	0.00	2	18.87	0	n/a**	2	1	18.87	2	1	18.87
76	0	0.00	0	0.00	0	0.00	0	3	0.00	2	4	2.81
77	0	0.00	0	0.00	3	4.51	3	0	2.96	5	4	2.90
78	0	0.00	1	2.53	0	0.00	1	1	1.00	6	5	2.21
79	0	0.00	1	4.15	0	0.00	1	0	0.89	7	5	1.83
80	0	0.00	0	0.00	0	0.00	0	2	0.00	7	7	1.38
81	0	0.00	0	0.00	2	2.55	2	0	1.71	9	7	1.45
82	0	0.00	0	0.00	0	0.00	0	0	0.00	9	7	1.26
83	0	0.00	0	0.00	0	0.00	0	0	0.00	9	7	1.11
84	1	4.60	0	0.00	0	0.00	1	1	0.99	10	8	1.09
85	0	0.00	0	0.00	0	0.00	0	1	0.00	10	9	0.98
86	1	2.75	0	0.00	2	4.55	3	0	2.84	13	9	1.16
87	0	0.00	0	0.00	1	2.60	1	0	1.04	14	9	1.14
88	0	0.00	0	0.00	0	0.00	0	0	0.00	14	9	1.05
89	0	0.00	0	0.00	0	0.00	0	0	0.00	14	9	0.97
90	1	3.16	0	0.00	0	0.00	1	0	1.02	15	9	0.98
91	1	3.65	0	0.00	0	0.00	1	0	1.10	16	9	0.98
92	0	0.00	0	0.00	0	0.00	0	0	0.00	16	9	0.93
93	1	4.02	0	0.00	0	0.00	1	2	1.23	17	11	0.94
94	0	0.00	0	0.00	0	0.00	0	0	0.00	17	11	0.90
95	0	0.00	0	0.00	0	0.00	0	1	0.00	17	12	0.86
96	0	0.00	0	0.00	0	0.00	0	0	0.00	17	12	0.83
97	0	0.00	1	4.18	2	7.32	3	0	4.01	20	12	0.94
98	1	4.67	0	0.00	0	0.00	1	0	1.42	21	12	0.96
99	1	4.22	0	0.00	0	0.00	1	0	1.34	22	12	0.97
00	1	3.31	0	0.00	2	5.15	3	0	3.29	25	12	1.06
01	0	0.00	0	0.00	0	0.00	0	0	0.00	25	12	1.02
02	0	0.00	0	0.00	0	0.00	0	0	0.00	25	12	0.99
03	0	0.00	1	4.97	2	2.40	3	0	3.59	28	0	1.07
04	0	0.00	0	0.00	3	8.52	3	0	3.82	31	12	1.15
Total	**8**	**1.17**	**6**	**0.83**	**16**	**1.25**	**31**	**12**	**1.15**			

* Non-chargeable fatal accidents.

** Contract flight hours not available in 1975.

FATALITY RATE HISTORY



	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Annual Rate	66.0	0.00	4.94	1.00	1.79	0.00	2.56	0.00	0.00	0.99	0.00	9.46	1.04	0.00	0.00	0.00	2.20	0.00	1.23	0.00	0.00	0.00	6.69	11.3	2.68	4.39	0.00	0.00	2.39	5.10
Historical Rate	66.0	9.87	6.97	4.79	3.91	2.98	2.89	2.51	2.22	2.08	1.86	2.58	2.46	2.26	2.09	1.95	1.97	1.86	1.83	1.75	1.68	1.62	1.80	2.11	2.12	2.21	2.13	2.06	2.07	2.16

Graph 4

Fatality rate per 100,000 flight hours

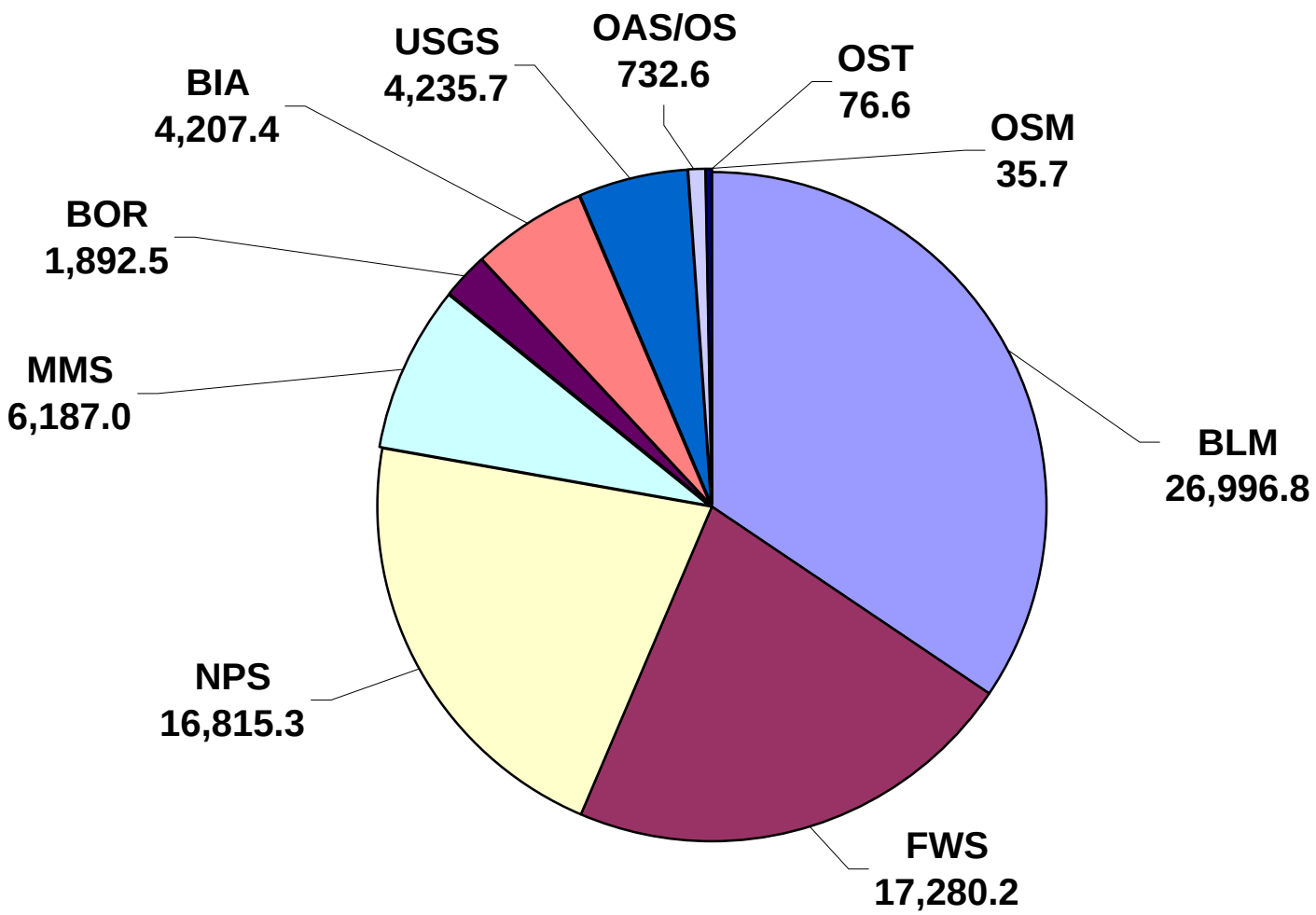
FATALITY RATE HISTORY

	Rental		Fleet		Contract		Total (Annual)			Total (Historical)		
Year	**Fatalities**	**Rate**	**Fatalities**	**Rate**	**Fatalities**	**Rate**	**Fatalities**	**Fatalities***	**Rate**	**Fatalities**	**Fatalities***	**Rate**
75	0	0.00	7	66.04	0	n/a*	7	3	66.04	7	3	66.04
76	0	0.00	0	0.00	0	0.00	0	13	0.00	7	16	9.87
77	0	0.00	0	0.00	5	7.52	5	0	4.94	12	16	6.97
78	0	0.00	1	2.53	0	0.00	1	1	1.00	13	17	4.79
79	0	0.00	2	8.31	0	0.00	2	0	1.79	15	17	3.91
80	0	0.00	0	0.00	0	0.00	0	5	0.00	15	22	2.98
81	0	0.00	0	0.00	3	3.82	3	2	2.56	18	24	2.89
82	0	0.00	0	0.00	0	0.00	0	0	0.00	18	24	2.51
83	0	0.00	0	0.00	0	0.00	0	0	0.00	18	24	2.22
84	1	4.60	0	0.00	0	0.00	1	2	0.99	19	26	2.08
85	0	0.00	0	0.00	0	0.00	0	1	0.00	19	27	1.86
86	4	11.01	0	0.00	6	13.66	10	4	9.46	29	31	2.58
87	0	0.00	0	0.00	1	2.60	1	1	1.04	30	32	2.46
88	0	0.00	0	0.00	0	0.00	0	0	0.00	30	32	2.26
89	0	0.00	0	0.00	0	0.00	0	0	0.00	30	32	2.09
90	0	0.00	0	0.00	0	0.00	0	1	0.00	30	33	1.95
91	2	7.31	0	0.00	0	0.00	2	1	2.20	32	34	1.97
92	0	0.00	0	0.00	0	0.00	0	0	0.00	32	34	1.86
93	1	4.02	0	0.00	0	0.00	1	4	1.23	33	38	1.83
94	0	0.00	0	0.00	0	0.00	0	0	0.00	33	38	1.75
95	0	0.00	0	0.00	0	0.00	0	1	0.00	33	39	1.68
96	0	0.00	0	0.00	0	0.00	0	0	0.00	33	39	1.62
97	0	0.00	1	4.18	4	14.65	5	2	6.69	38	41	1.80
98	8	37.36	0	0.00	0	0.00	8	1	11.36	46	42	2.11
99	2	8.45	0	0.00	0	0.00	2	0	2.68	48	42	2.12
00	3	9.94	0	0.00	1	2.57	4	2	4.39	52	44	2.21
01	0	0.00	0	0.00	0	0.00	0	0	0.00	52	44	2.13
02	0	0.00	0	0.00	0	0.00	0	0	0.00	52	44	2.06
03	0	0.00	1	4.97	1	2.68	2	2	2.39	54	46	2.07
04	0	0.00	0	0.00	4	11.36	4	4	5.10	58	50	2.16
Total	**21**	**3.08**	**12**	**1.66**	**25**	**1.95**	**58**	**50**	**2.16**			

* Non-DOI fatalities associated with DOI aircraft accidents.

** Contract flight hours not available in 1975.

BUREAU FLIGHT HOURS
FY 04



Total flight hours - 78,459.8

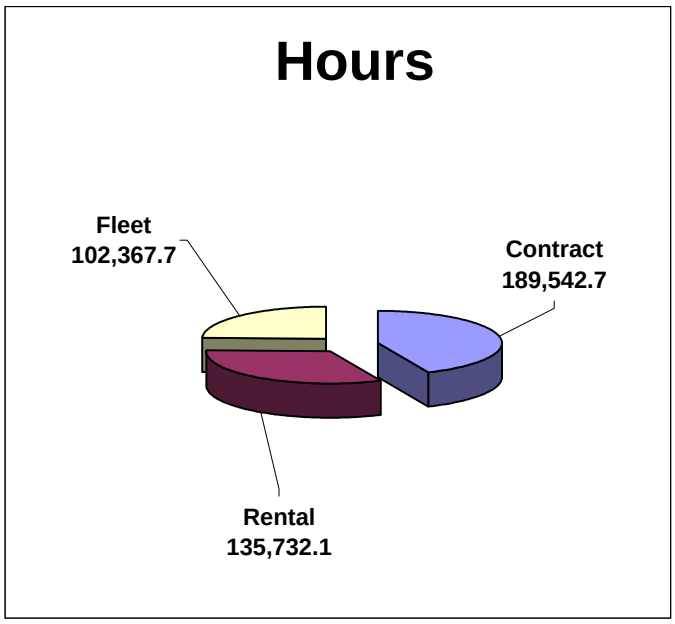
BUREAU STATISTICS

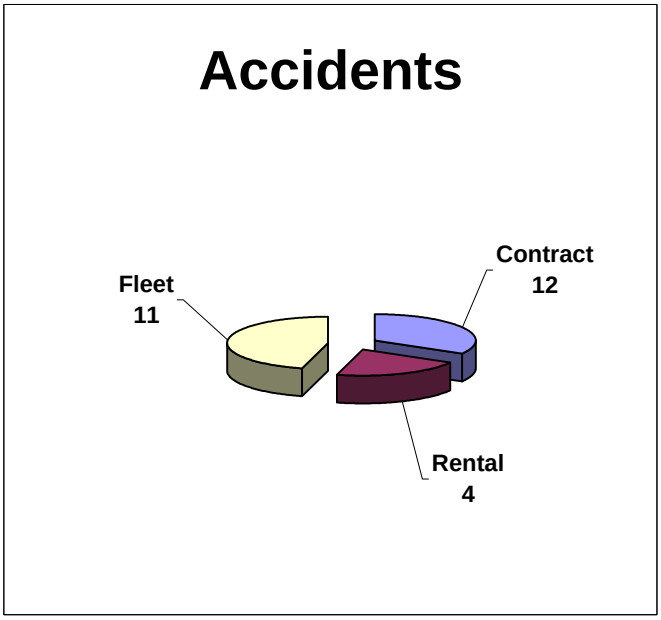
5 YEAR HISTORY

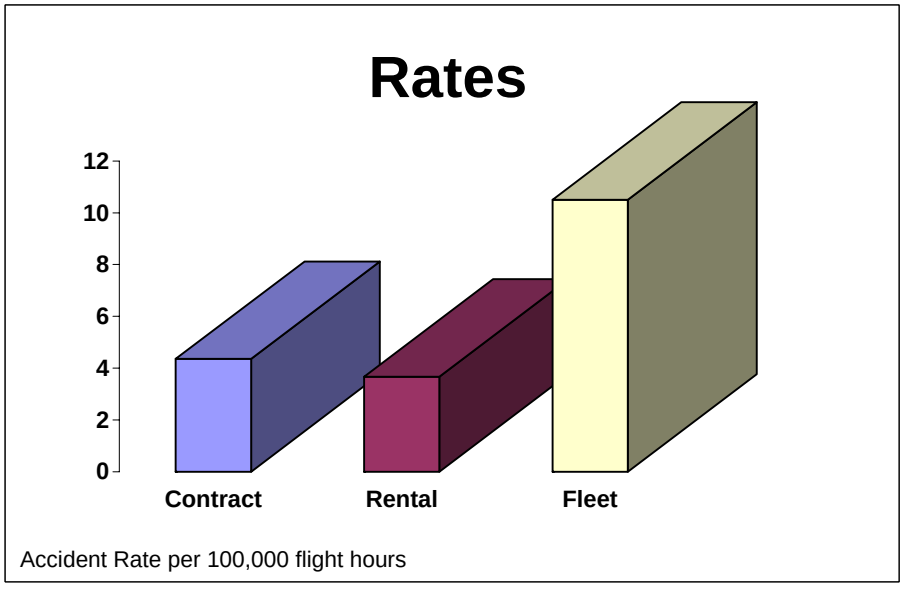
Bureau	Statistic	FY 00	FY01	FY02	FY03	FY04	TOTAL
BLM	Hours	31,422.1	29,178.5	31,740.8	27,683.2	26,996.8	147,021.4
	Accidents	3	2	1	1	2	9
	Rate	9.5	6.8	3.2	3.6	7.4	6.1
FWS	Hours	19,117.9	17,783.8	18,498.6	18,603.7	17,280.2	91,284.2
	Accidents	1	1	4	1	0	7
	Rate	5.2	5.6	21.6	5.3	0.0	7.7
NPS	Hours	19,283.1	17,999.1	17,555.3	17,519.5	16,815.3	89,172.3
	Accidents	1	1	1	0	3	6
	Rate	5.2	5.6	5.7	0.0	17.8	6.7
MMS	Hours	7,574.9	6,988.6	7,493.8	6,270.7	6,187.0	34,515.0
	Accidents	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0
BOR	Hours	2,510.8	2,236.7	1,963.7	1,733.6	1,892.5	10,337.3
	Accidents	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0
BIA	Hours	5,714.3	4,488.9	7,093.7	6,387.5	4,207.4	27,891.8
	Accidents	0	0	0	2	1	3
	Rate	0.0	0.0	0.0	31.3	23.8	10.8
USGS	Hours	4,769.2	5,507.1	4,596.5	4,390.3	4,235.7	23,498.8
	Accidents	0	0	2	0	0	2
	Rate	0.0	0.0	43.5	0.0	0.0	8.5
OAS/OS	Hours	662.0	730.7	711.7	715.9	732.6	3,552.9
	Accidents	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0
OSM	Hours	42.6	62.6	49.3	27.1	35.7	217.3
	Accidents	0	0	0	0	0	0
	Rate	0	0	0	0	0	0
OST	Hours	0	0	0	74.9	76.6	151.5
	Accidents	0	0	0	0	0	0
	Rate	0	0	0	0	0	0
TOTAL	Hours	91,096.9	84,976.0	89,703.4	83,406.4	78,459.8	427,642.5
	Accidents	5	4	8	4	6	27
	Rate	5.5	4.7	8.6	4.8	7.6	6.3

( ) Indicates non-accountable accidents or non-chargeable accidents.

SOURCE COMPARISONS
FY 00 - FY 04

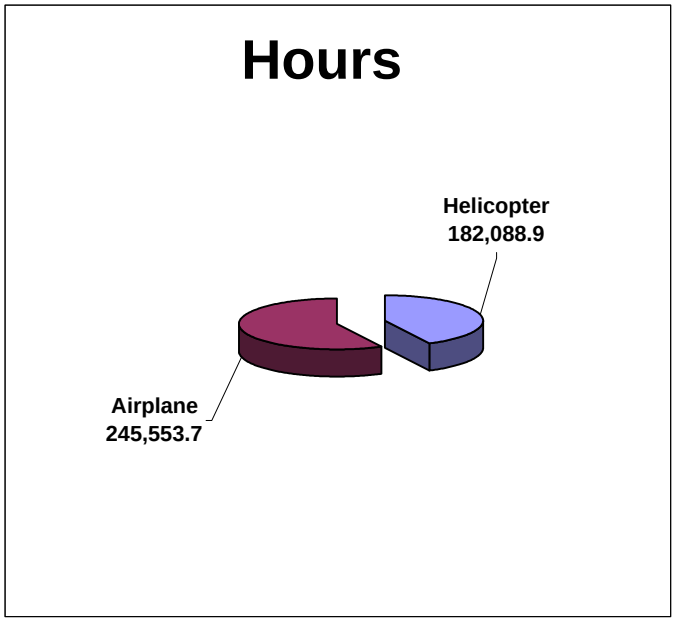


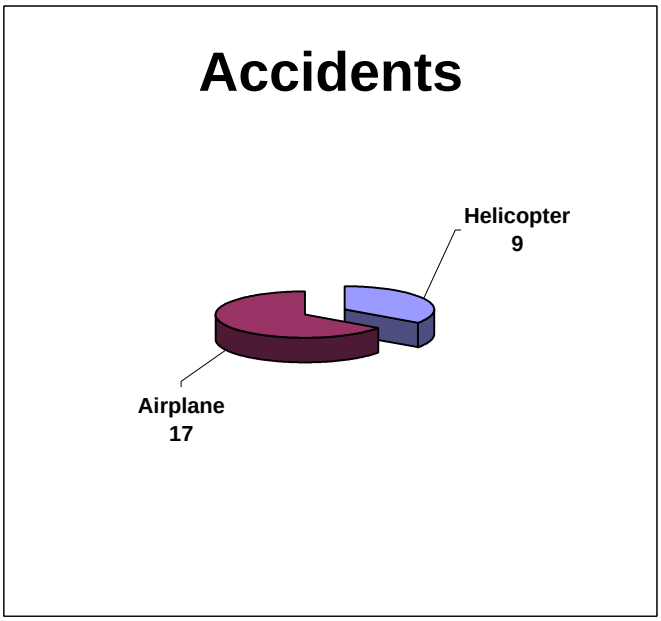


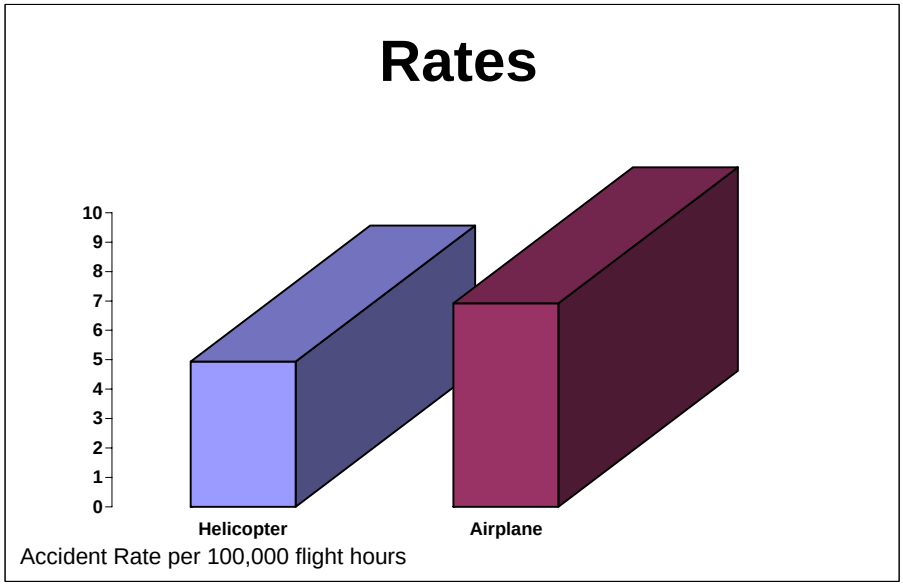


Contract = 6.3
Rental = 2.9
Fleet = 10.7

AIRCRAFT COMPARISONS
FY 00 - FY 04

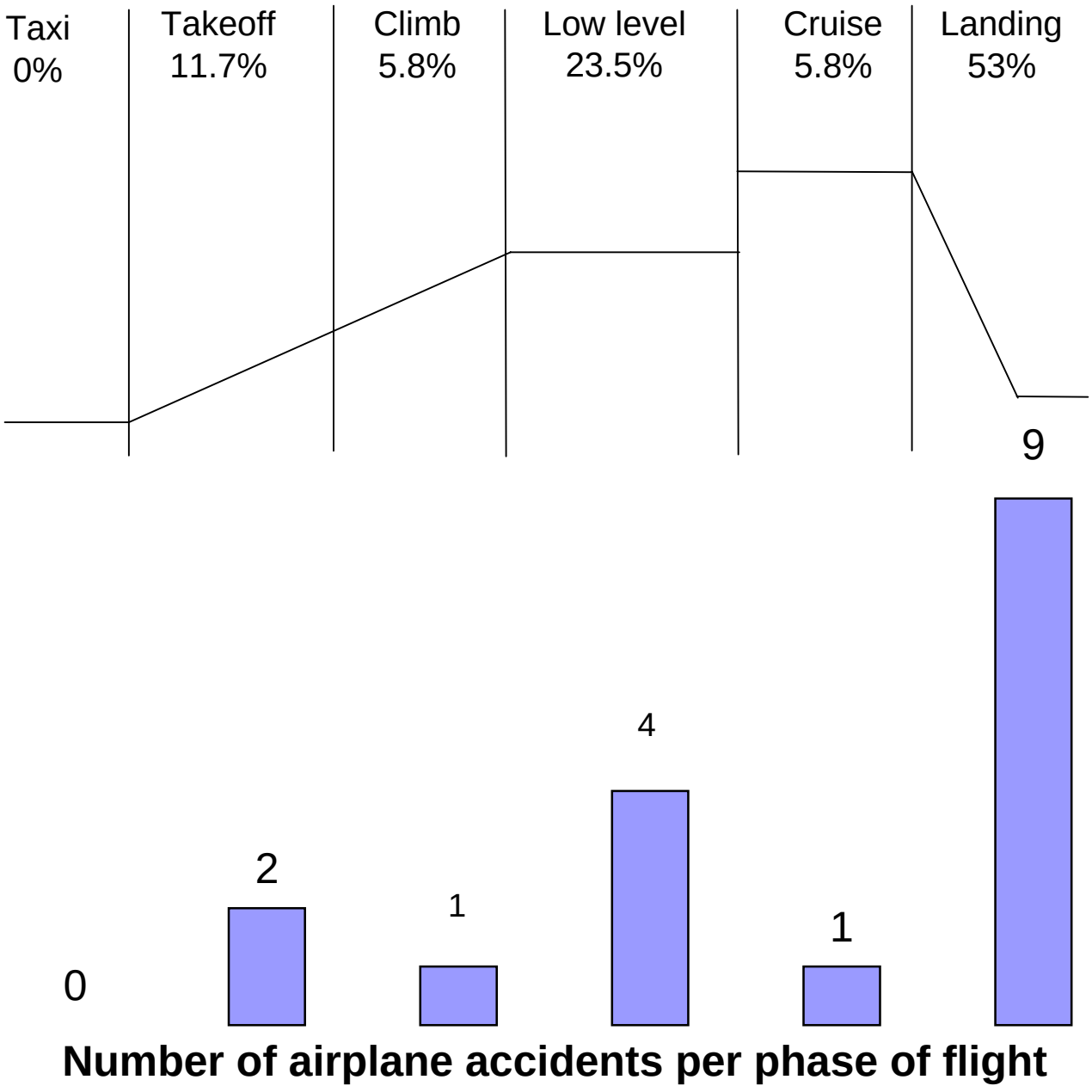




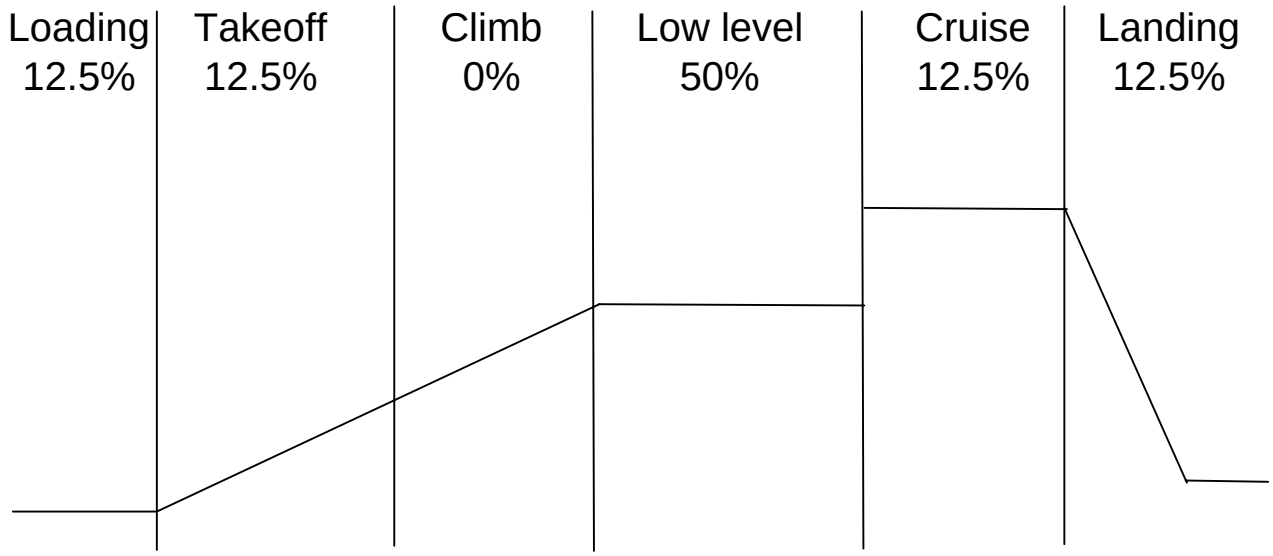


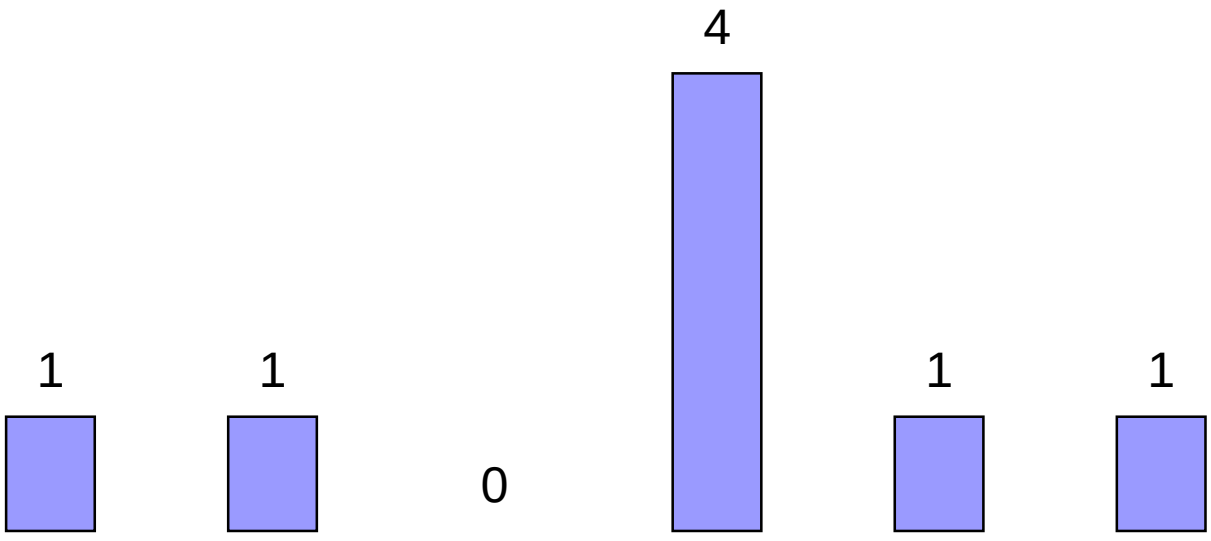
Airplane = 6.92
Helicopter = 4.94

Airplane Phase of Flight Comparisons FY 00 - FY 04



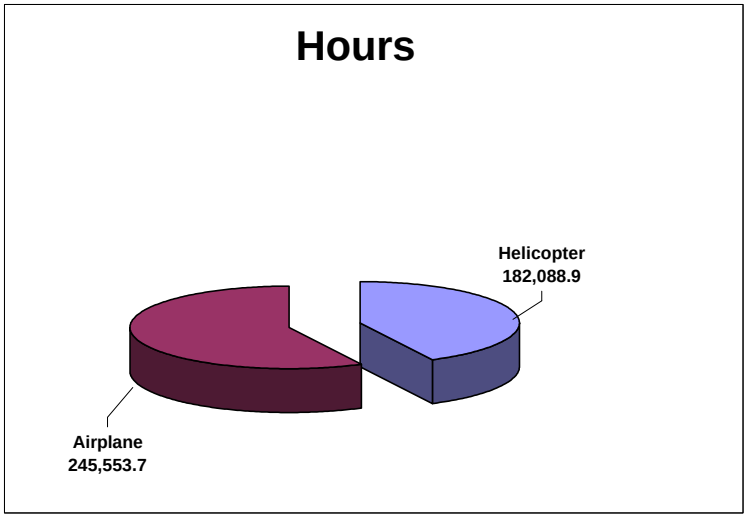
Helicopter Phase of Flight Comparisons FY 00 - FY 04

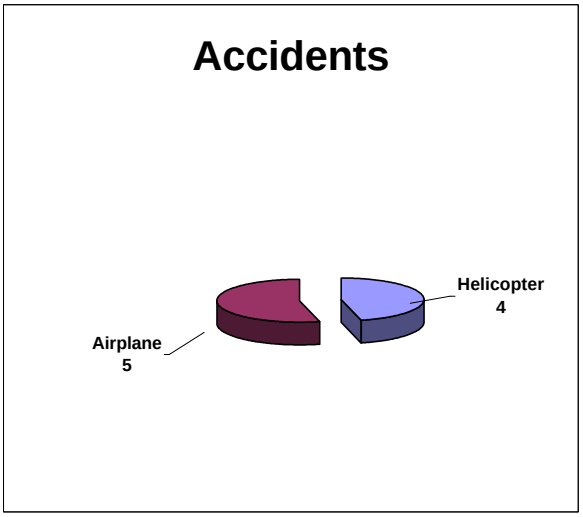


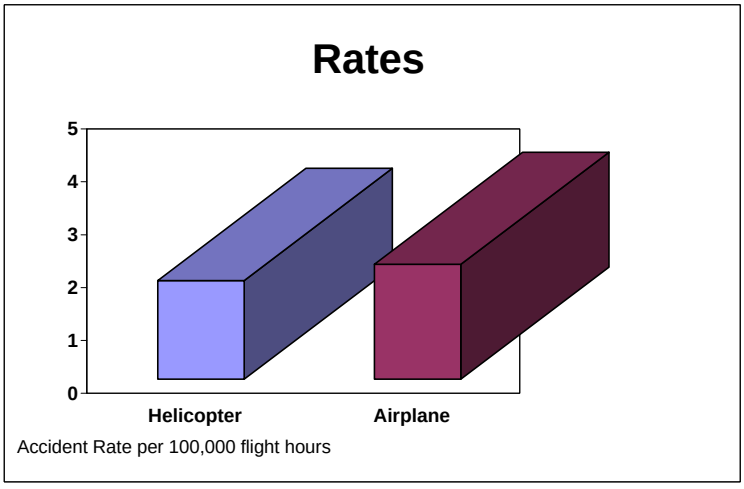


Number of helicopter accidents per phase of flight

FATAL ACCIDENT COMPARISONS
FY 00 - FY 04



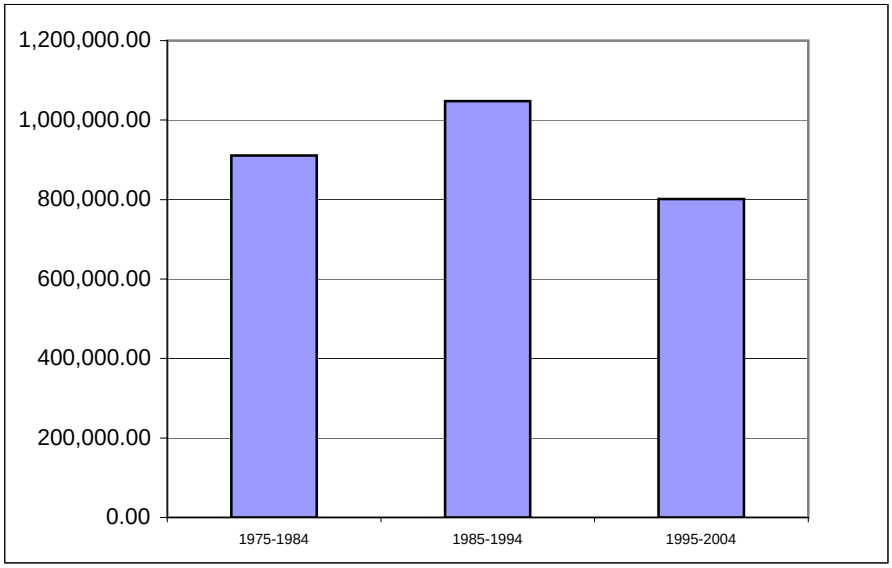




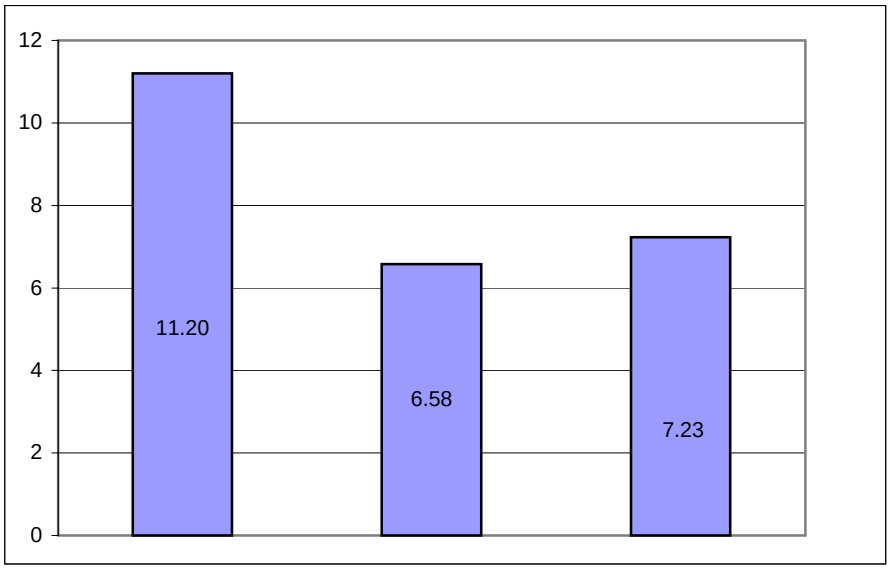
Airplane = 2.03
Helicopter = 2.19

Department of the Interior
Accident Statistics in 10-Year Increments

Year	Total Hours	Total Accidents	Historical Rate
1975-1984	910,722.70	102	11.2
1985-1994	1,047,872.00	69	6.58
1995-2004	801,663.70	58	7.23



The DOI total flight hours declined in the last 10-year period.



The DOI historical accident rate continues to fall from an initial high of 18.87 accidents per 100,000 flight hours in FY 75 to a current historical average of 8.52 per 100,000 flight hours through FY 04.

Section IV

Aviation Safety Communiqué (SAFECOM)

The Aviation Safety Communiqué (SAFECOM) database fulfills the Aviation Mishap Information System (AMIS) requirements for aviation mishap reporting for the Department of the Interior agencies and the U.S. Forest Service (USFS). Categories of reports include incidents, hazards, maintenance, and airspace. The system uses the SAFECOM form OAS-34 or FS-5700-14 to report any condition, observation, act, maintenance problem, or circumstance with personnel or aircraft that has the potential to cause an aviation-related mishap.

The SAFECOM system is not intended for initiating punitive actions. Submitting a SAFECOM is not a substitute for "on-the-spot" correction(s) to a safety concern. It is a tool used to identify, document, track and correct safety- related issues. A SAFECOM does not replace the requirement for initiating an accident or incident report.

We encourage the use of the system by anyone engaged in DOI/USFS aviation activities that either observes or identifies a hazard. SAFECOMS may be submitted in any manner that suits the sender, via the web at www.safecom.gov, by phone (1-888-4MISHAP), by fax (DOI, 1-208-433-5007; USFS-1-208-387-5735), or by mail.

For assistance, please call Aviation Management Directorate (AMD), Aviation Safety and Evaluation Division at 208-433-5070 or USFS at 208-387-5285.

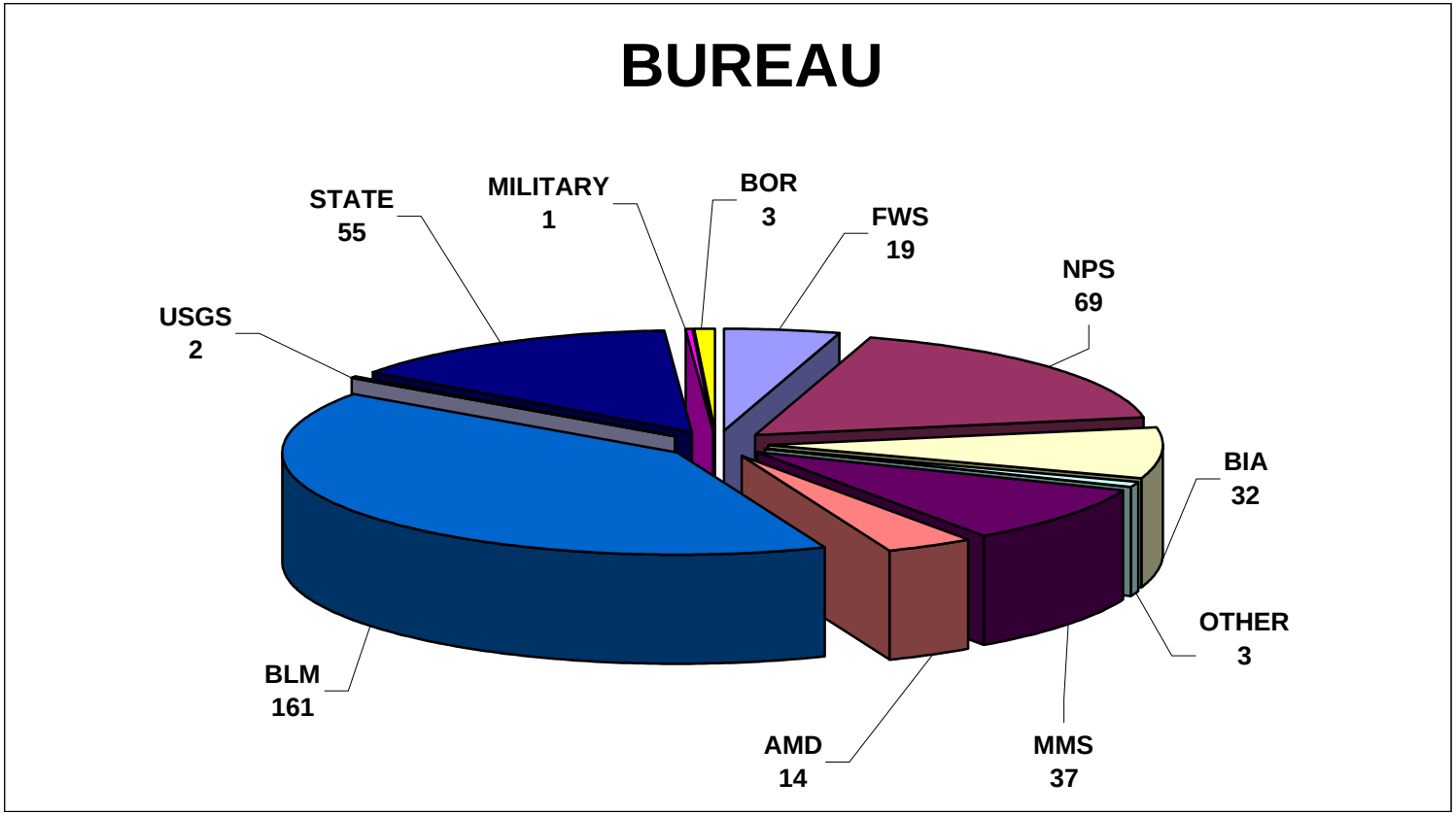
The DOI AMD Aviation Safety and Evaluation Division received a total of 396 SAFECOM reports in FY 04. The subtotals of the FY 04 reports were:

4	Accident
23	Airspace
128	Hazard
105	Incident
135	Maintenance
1	Mishap Prevention (Kudos)

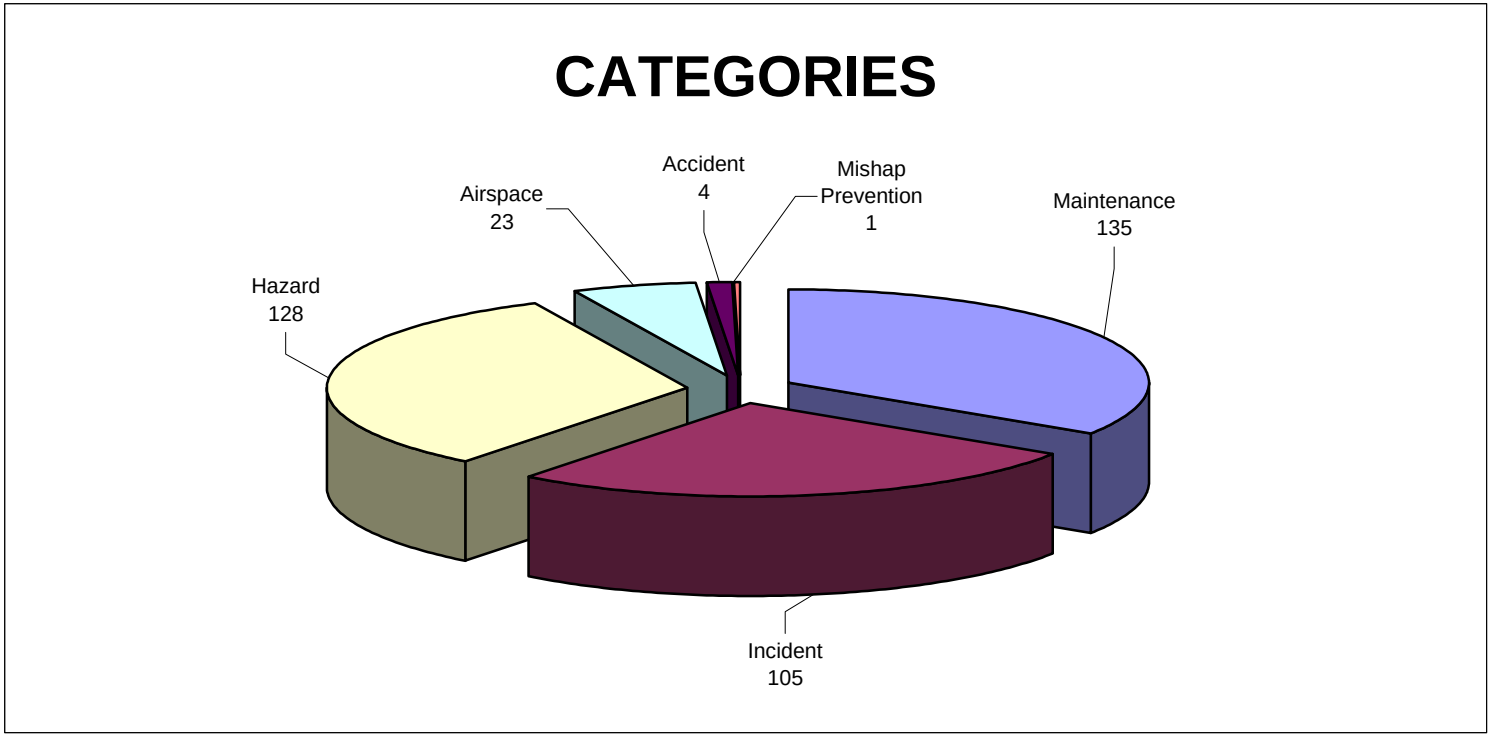
The DOI FY 04 SAFECOM summaries include:

Bureau Summary	Graph 10
Category Summary	Graph 11
Incident Summary	Graph 12
Hazard Summary	Graph 13
Maintenance Summary	Graph 14
Airspace Summary	Graph 15
Bureau and Category Summary	Table 6
Bureau and Aircraft Type Summary	Table 7
Ten-Year Trend Analysis	Graph 16

SAFECOM SUMMARY
FY 04

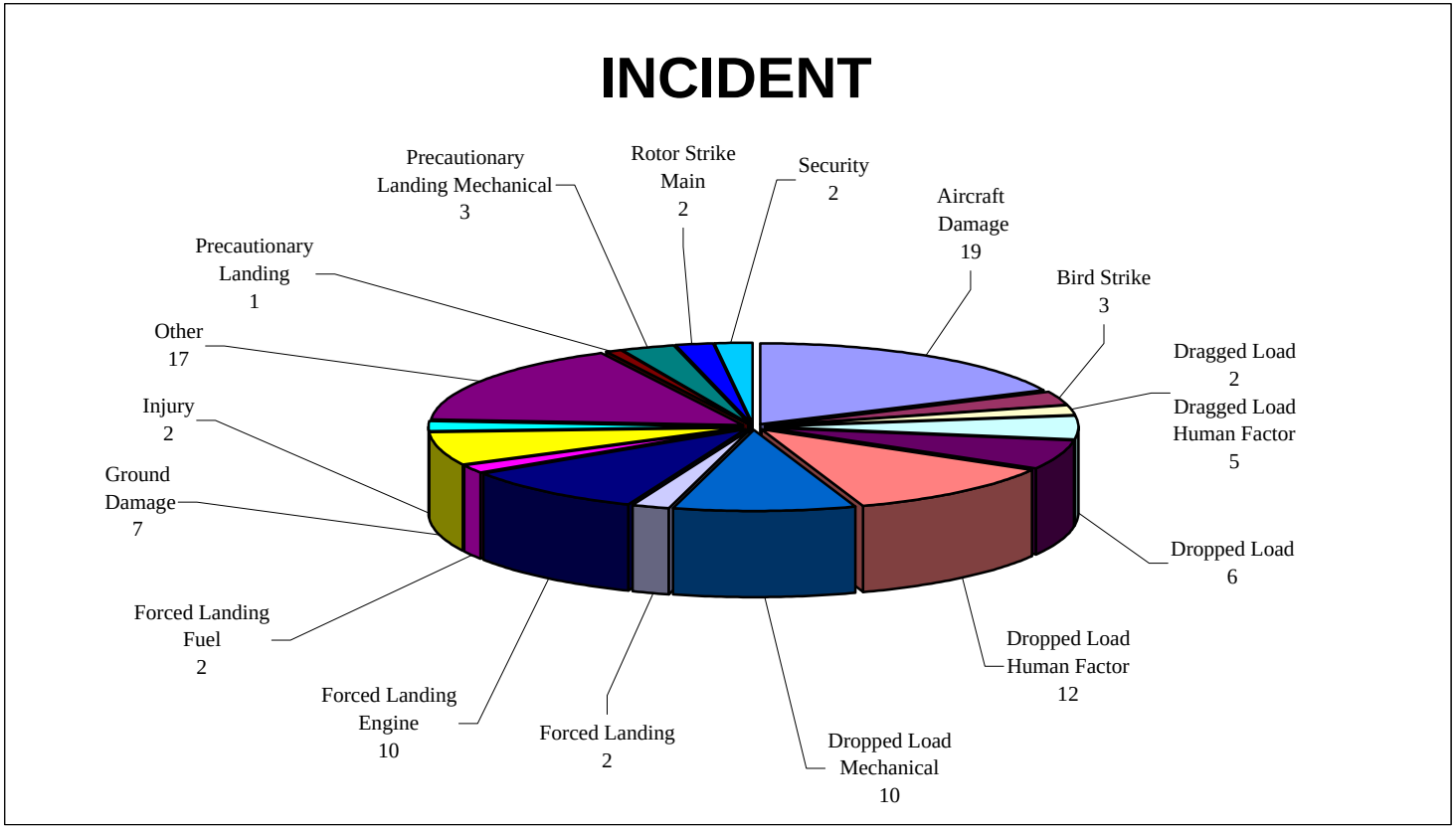


SAFECOM SUMMARY
FY 04

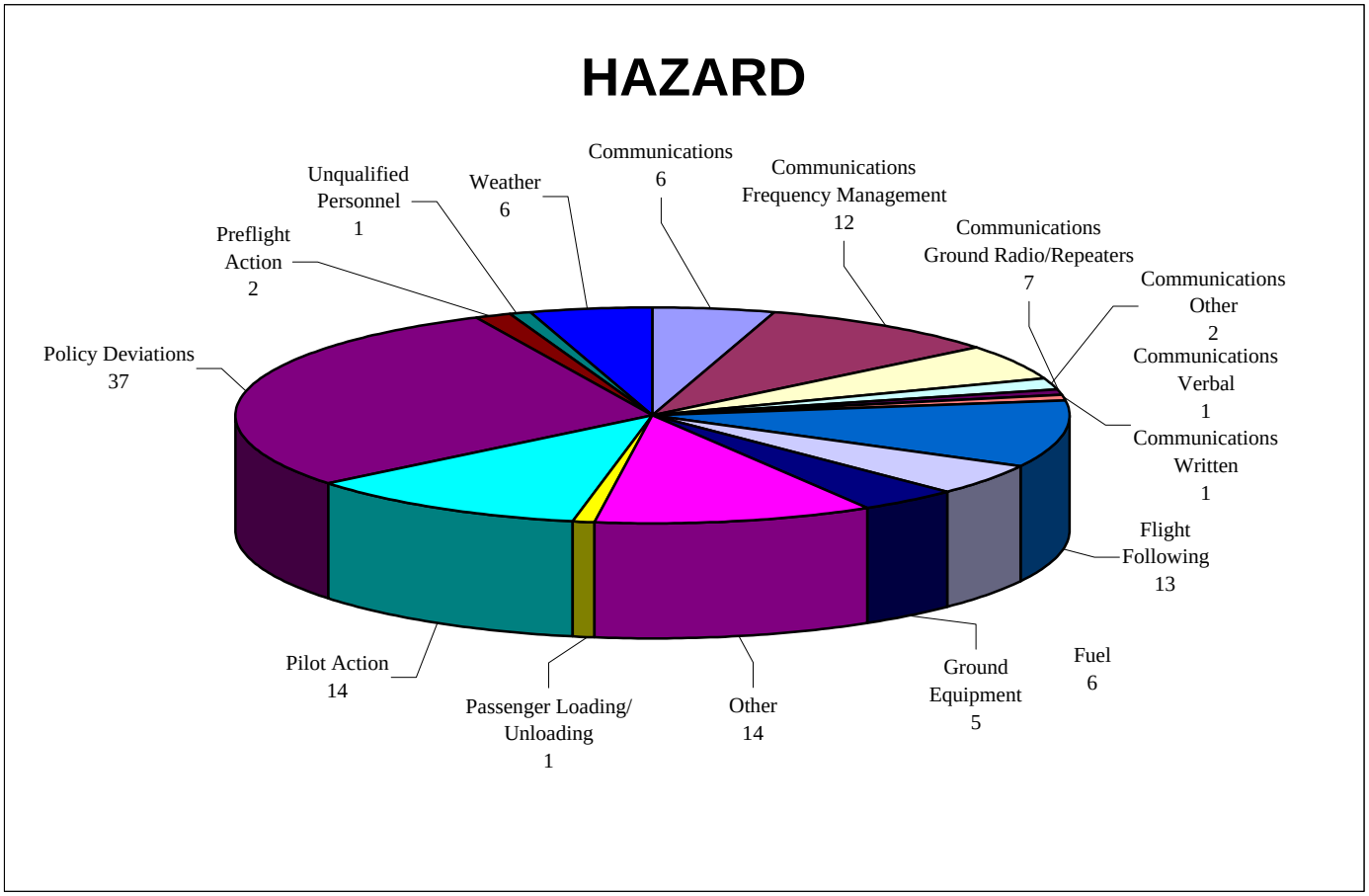


Graph 11

SAFECOM SUMMARY
FY 04



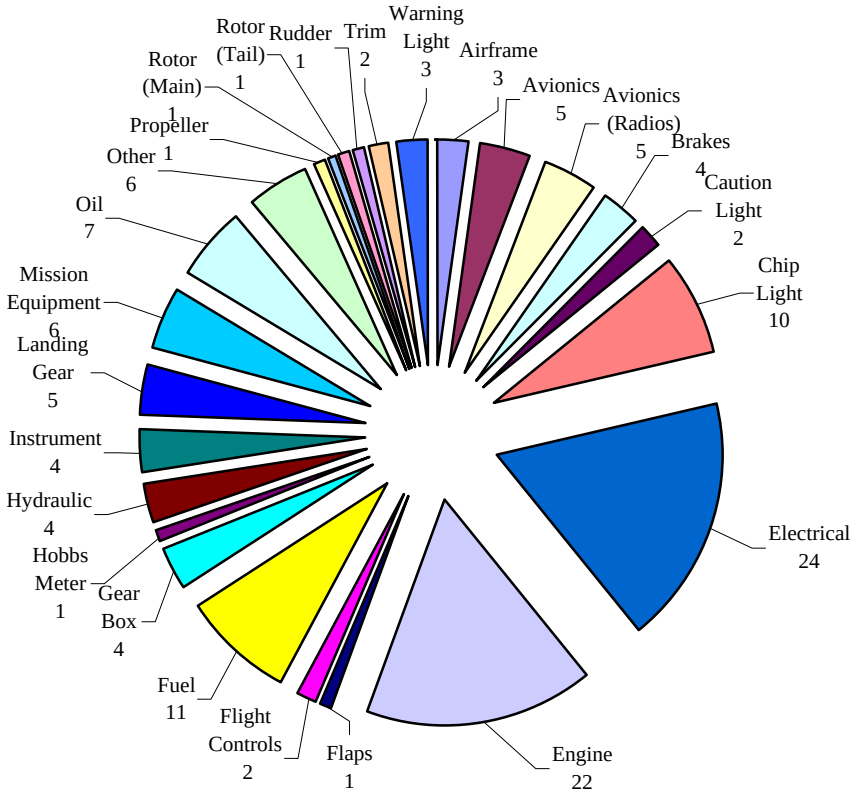
SAFECOM SUMMARY
FY 04



Graph 13

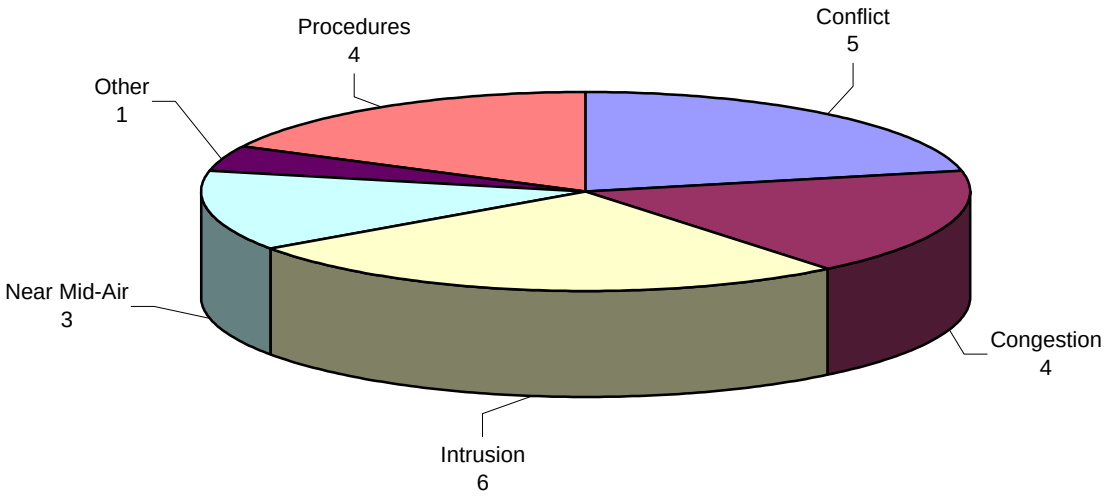
SAFECOM SUMMARY
FY 04

MAINTENANCE



SAFECOM SUMMARY
FY 04

AIRSPACE



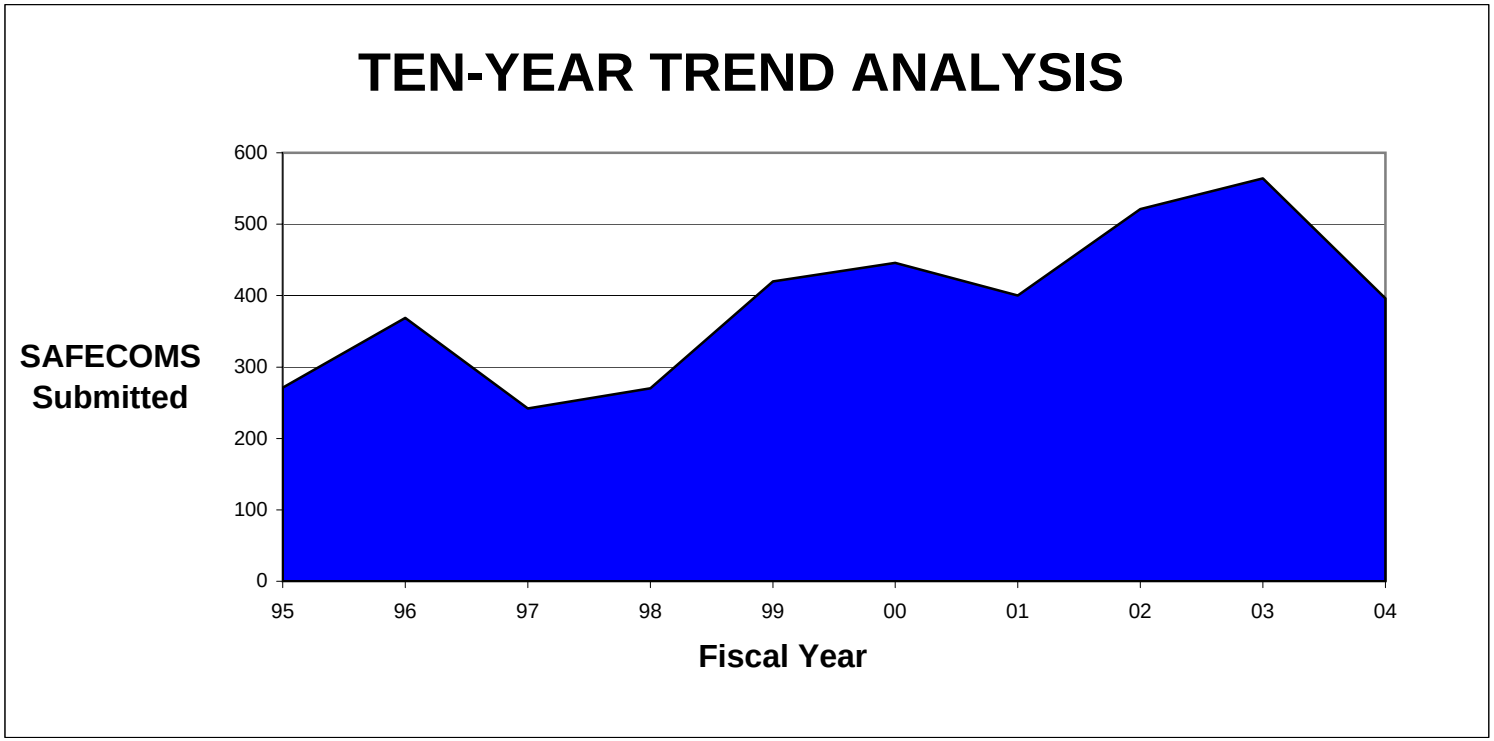
FY 04 SAFECOM's
By Bureau and Category

Agency	Accident	Airspace	Hazard	Incident	Maintenance	Mishap Prevention	Total
Bureau of Indian Affairs		3	7	7	15		32
Bureau of Land Management		10	60	38	52	1	161
Bureau of Reclamation			2	1			3
Aviation Management Directorate			2	6	6		14
U.S. Fish and Wildlife Service			3	7	9		19
Military			1				1
Minerals Management Service			3	6	28		37
National Park Service	1	4	29	25	10		69
Other/Unknown	2			1			3
State	1	6	19	14	15		55
U.S. Geological Survey			2				2
Total	4	23	128	105	135	1	396

FY 04 SAFECOM's
By Bureau and Aircraft Type

Agency	Airplane	Helicopter	Airtanker (Multi Engine)	Not Applicable	SEAT	Total
Bureau of Indian Affairs	7	18		1	6	32
Bureau of Land Management	31	86	2	9	33	161
Bureau of Reclamation		3				3
DOI Aviation Management Directorate	6	5	1	2		14
U.S. Fish and Wildlife Service	10	9				19
Military		1				1
Minerals Management Service	1	35	1			37
National Park Service	22	44	1	2		69
Other/Unknown	2	1				3
State	11	37	4	1	2	55
U.S. Geological Survey		2				2
Total	90	241	9	15	41	396

1995	271
1996	369
1997	242
1998	270
1999	420
2000	446
2001	400
2002	521
2003	564
2004	396



GLOSSARY

Aircraft accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Aircraft incident. An occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

Airspace conflict. A near midair collision, intrusion, or violation of airspace rules.

Aviation hazard. Any condition, act, or set of circumstances that exposes an individual to unnecessary risk or harm during aviation operations.

Fatal injury. Any injury which results in death within 30 days of the accident.

Forced landing. A landing necessitated by failure of engines, systems, or components which makes continued flight impossible, and which may or may not result in damage.

Incident with potential. An incident that narrowly misses being an accident and in which the circumstances indicate significant potential for substantial damage or serious injury. Final classification will be determined by the Aviation Management Directorate, Aviation Safety Manager.

Maintenance deficiency. An equipment defect or failure which affects or could affect the safety of operations, or that causes an interruption to the services being performed.

Non-chargeable accidents. Accidents in which DOI was not exercising operational control over the aircraft at the time of the accident but in which DOI employees or DOI-procured aircraft were involved.

Operator. Any person who causes or authorizes the operation of an aircraft, such as the owner, leasee, or bailee of an aircraft.

Precautionary landing. A landing necessitated by apparent impending failure of engines, systems, or components which makes continued flight unadvisable.

Serious injury. Any injury which: (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second-or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Substantial damage. Damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wing tips are not considered "substantial damage" for the purpose of 49 CFR Part 830.